Formerly Utilized Sites Remedial Action Program

(FUSRAP)

REPORT TO CONGRESS

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FIGURES

TABLES

ACRONYMS

A-E	Architect-Engineer
ACP	Accelerated Cleanup Plan
AEA	Atomic Energy Act
AEC	Atomic Energy Commission
ANL	Argonne National Laboratory
ARAR	Applicable or relevant and appropriate requirement
BEMR	Baseline Environmental Management Review
CA	Cooperative Agreement
CANiT	Coalition Against Nuclear Waste in Tonawanda
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DERP	Defense Environmental Restoration Program
DOE	U.S. Department of Energy
EE/CA	Engineering Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
ESH	Environmental Safety and Health
FUDS	Formerly Used Defense Sites
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	fiscal year
HTRW	Hazardous, Toxic, and Radioactive Waste
ID/IQ	Indefinite Delivery/Indefinite Quantity
IVC	Independent Verification Contractor
MED	Manhattan Engineer District
MOU	Memorandum of Understanding
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NFSS	Niagara Falls Storage Site
NORM	Naturally Occurring Radioactive Material
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
O&M	Operation and Maintenance
OEW	ordnance/explosive waste
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
PA/SI	Preliminary Assessment/Site Investigation
PMI	Project Management and Integration
PRAC	Pre-placed Remedial Action Contract
PRP	Potentially Responsible Party
QA	Quality Assurance
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RR/IR	Rapid Response/Immediate Response
SARA	Superfund Amendments and Reauthorization Act of 1986
SLAPS	St. Louis Airport Site
SLDS	St. Louis Downtown Site
TERC	Total Environmental Restoration Contract
UMTRA	Uranium Mill Tailing Recovery Act
USACE	U.S. Army Corps of Engineers

1. EXECUTIVE SUMMARY

The Energy and Water Development Appropriations Act for fiscal year 1998 (FY98) P.L. 105-62, signed into law on October 13, 1997, transferred responsibility for the administration and execution of the Formerly Utilized Sites Remedial Action Program (FUSRAP) from the U.S. Department of Energy (DOE) to the U.S. Army Corps of Engineers (USACE). This report responds to the House and Senate Committees on Appropriations request for a report by USACE determining whether it is possible and/or reasonable to meet DOE's proposed 2002 completion date for FUSRAP, and what steps must be taken to meet such a date. The findings of this report cover the period from the signing of the Appropriation Bill through the end of December 1997. During this time USACE met with the representatives of DOE and their contractors at their Oak Ridge offices, reviewed their records, and made visits to each of the sites to verify existing conditions.

DOE created FUSRAP to address radiological contamination at sites used by two of DOE's predecessor agencies, the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC), from the 1940s through the 1960s. The contaminants are primarily low levels of uranium, thorium, and radium, with their associated decay products. Mixed wastes are also present. DOE had identified 46 sites in their program. None of these sites pose an immediate threat to human health or the environment. At the time of enactment of P.L. 105-62, according to DOE, remediation was completed at 24 sites with some ongoing operation, maintenance and monitoring being undertaken by DOE. Remedial action was planned, underway, or pending final closeout at the remaining 22 sites.

USACE's assessment of the feasibility of completing remediation by the year 2002 focused on DOE scopes of work, cost estimates and schedules at the remaining 22 sites. There are sufficient programmatic and site-specific uncertainties associated with DOE's draft accelerated cleanup plan that the ability to complete the FUSRAP program on such a schedule is questionable. In USACE's estimation, because of these uncertainties, completion of remediation (that is complete site remediation and closeout under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)) for the remaining 22 sites could not be accomplished by 2002.

In February 1997, as part of its Ten-Year Plan for Environmental Management, DOE estimated a total program cost for FUSRAP of $1.993 billion through 2006. In June 1997, DOE prepared a draft accelerated cleanup plan which projects that the majority of FUSRAP work could be completed by the year 2002 at a total program cost of $1.471 billion (remaining cost for FY97-02 period = $983 million). In developing the draft accelerated cleanup plan, significant changes were made to the program scope to account for the shortened schedule and reduced costs. For example, the Niagara Falls Storage Site remedy was changed from removal of high concentration residues with offsite disposal to long-term surveillance and maintenance. This change effectively results in the elimination of the site from the program and results in a $219 million reduction in the program. However, this change did not have the agreement of all of the stakeholders involved. In the St. Louis area, future land use for the St. Louis Downtown Site and the St. Louis

Airport site was changed from “industrial” to “restricted industrial” which reduced the overall cost by $250 million, but again, did not have the concurrence of all of the stakeholders. In other words, the draft accelerated cleanup plan does not represent a faster and cheaper way of accomplishing the same scope of work defined in the 2006 Ten Year Plan; the draft accelerated cleanup plan represents a revised cost and schedule to accomplish a significantly smaller scope of work.

In addition, some problem areas were not addressed in sufficient detail in either plan. For example, both estimated the scope of the beryllium contamination at the Luckey, (OH) site at only 35,000 cubic yards of soil. Based on new information contamination is currently known to be more extensive. The potential quantity of soil to excavate ranges between 100,000 and 125,000 cubic yards. Neither plan incorporates schedules reflecting sufficient time and effort to determine and negotiate appropriate federal cost contribution in Potentially Responsible Party (PRP) actions. Because of the limited information available for most of the sites, DOE also did not include estimates for the time and cost associated with potential groundwater treatment. Costs associated with long-term operation and maintenance, including monitoring, also were not included in DOE's estimates for the program.

Selection of appropriate remediation objectives and criteria is **a** significant cost driver. Cost, schedule, and local acceptance can vary significantly as a result of this decision. DOE generally chose conservative criteria reflecting, in part, the influences of local communities and state regulators. USACE will remediate the sites using criteria for remediation which are fully protective of human health and the environment and take into account cost, regulatory and community acceptance, and land reuse requirements. Sites will be remediated in accordance with the CERCLA and National Contingency Plan (NCP) process, as has been successfully applied at Superfund sites with similar radioactive contamination. Where appropriate, USACE will use cleanup standards based on 10 CFR Part 20, 40 CFR Part 192 , and the EPA’s excess cancer risk-based guidance.

USACE has completed its initial assessment to determine if it is possible and/or reasonable to meet DOE’s proposed FUSRAP completion by 2002, and what steps must be taken to meet such a date. USACE believes 16 of the 22 sites could be completed through CERCLA closeout by the year 2002, but only with an unconstrained funding schedule, agreed-to modifications to the program criteria on the part of stakeholders and regulators, and if PRP activities are not pursued. The six remaining sites cannot be completed by the year 2002. Four of the sites could be remediated by 2004 with unconstrained funding and significant changes to the cleanup parameters, such as; agreements on cleanup criteria which reduce the volume of soil to be removed; the ability to leave some waste in place; and disposal of some material within that state. The remaining two sites, Niagara Falls Storage Site and Luckey cannot be completed until after 2004. These sites are in the early stages of characterization and pose a major technical challenge for site cleanup.

USACE’s assessment indicates that cleanup of FUSRAP sites can be completed by 2006 at a remaining cost of $1.56 billion (baseline approach), or by 2008 at a remaining cost of $2.25 billion (conservative approach), depending mostly upon the cleanup goals (e.g., future expected land

use) selected for the most contaminated sites. These estimates assume funds would be provided to meet an optimal schedule (unconstrained approach). Although there is a degree of uncertainty on groundwater treatment, based on the limited site characterization information available and USACE's experience, costs for groundwater treatment have been included. Long-term operation and maintenance, including monitoring, is not included in these costs.

A significant schedule driver in the FUSRAP program will be the annual appropriations received by the program. At a constrained funding rate of $140 million annually, as appropriated by Congress in FY98, the remaining 22 sites could be completed in either 2011 or 2018, at a remaining cost of $1.88 billion and $2.89 billion respectively, depending upon the cleanup criteria selected. USACE will coordinate with regulators and local interests during the coming months to further assess the program and refine scopes of work, cost estimates and schedules.

DOE's Ten Year and draft accelerated cleanup plans assumed an annual program of $182M per year and yielded program completion dates of 2006 and 2002, respectively. At this annual funding level, USACE believes it would take until 2008 to complete the program ($1.81 billion remaining costs) or 2013 ($2.72 billion remaining costs) depending, once again upon the cleanup criteria selected.

Table 1.1 summarizes the results of USACE's initial assessment and provides remaining costs at escalated and current year (October 1997) levels; it also represents DOE estimated costs and schedules.

During this assessment period, USACE received outstanding cooperation from DOE personnel at Oak Ridge and the project sites. The DOE program and project managers involved in FUSRAP acted responsibly and professionally, as have the DOE contractors.

Table 1.1. USACE Initial Assessment of the Formerly Utilized Sites Remedial Action Program (FUSRAP)

Option	Year of Completion	Total Program Cost * (Escalated)	Program Cost to Complete * (Escalated)	Program Cost to Complete * (at Oct 97 Prices)	Remarks
a. DOE Ten Year Plan	2006	$1.99 B	$1.38 B		Represents remediation at all 22 sites to potentially un-restrictive future land use. It does not include potential groundwater treatment and complete remediation of contamination at Luckey site. Completion date based on a level funding of $182 million annually.
b. DOE Accelerated Cleanup Plan	2002	$1.47 B	$0.91 B		Represents major scope changes to option "a" at Niagara Falls Storage Site, Luckey, St. Louis Downtown, and St. Louis Airport Sites. One site was removed from the list when the remediation plan was changed to long-term surveillance and maintenance and remediation selection at two sites was changed to restrictive future land use. Completion based on $182 million annually.
c. USACE Unconstrained – Baseline Program	2006	$2.05 B	$1.56 B	$1.45 B	Reflects the low end of the cost range that USACE estimates to complete the FUSRAP program based on final remediation criteria that are fully protective of human health and the environment at the 22 sites. Cost includes potential groundwater treatment.
d. USACE Unconstrained Conservative Program	2008	$2.74 B	$2.25 B	$2.04 B	Reflects the high end of the cost range that USACE estimates to complete the FUSRAP program based on more conservative cleanup criteria at the 22 sites. Cost includes potential groundwater treatment.
e. USACE Constrained Baseline Program – (@ $140 million/year)	2011	$2.37 B	$1.88 B	$1.61 B	Shows option "c" with completion date based on funding constrained at $140 million annually.
f. USACE Constrained Conservative Program - (@ $140 million/year)	2018	$3.38 B	$2.89 B	$2.27 B	Shows option "d" with completion date based on funding constrained at $140 million annually.

** The Costs to Complete start with FY98, the two DOE options have been adjusted to reflect the $73 million DOE received in FY97 appropriations. None of the options reflect long-term operation and maintenance, including monitoring.*

2. PROGRAM OVERVIEW

2.1 BACKGROUND

The Formerly Utilized Sites Remedial Action Program (FUSRAP) was one of several U.S. Department of Energy (DOE) programs created to address radioactive contamination in excess of guidelines at a number of sites throughout the United States. Two of DOE's predecessor agencies, the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC), used many of these sites for processing and storing uranium and thorium ores during the 1940s, 1950s, and 1960s. Other sites included foundries, machine shops, research facilities, and nuclear fuel fabrication facilities. The Federal government owned some of these sites; universities, institutions, and certain private entities owned others.

Generally, sites that became contaminated through uranium and thorium operations during the early period of the nation's nuclear program were decontaminated and released for use under the regulations in effect at the time. Since then, more stringent standards have been developed. Where necessary, additional cleanup is being performed to bring these sites into compliance with today's more stringent environmental standards.

To assess these sites further and take appropriate remedial action, DOE initiated cleanup under FUSRAP in the late 1970's. Under FUSRAP, initial site activities focus on reviewing old records and surveying sites to determine if contamination that resulted from nuclear work by MED or the AEC exists, and if remedial action is required. In addition to sites identified through these surveys, Congress assigned five sites to DOE for remediation. DOE placed these sites in FUSRAP because of their similarity with or proximity to sites in the program.

Limited action began at some sites in 1979. Major remedial action has been underway since 1981. Currently, FUSRAP consists of 46 sites in 14 states (Figure 2.1). DOE completed remediation at 24 of the 46 sites by the end of FY 1997. This report focuses on the remaining 22 sites.

2.2 PROGRAM OBJECTIVES

DOE's FUSRAP objectives as presented in their Management Requirements and Policies Manual were to:

- Identify and evaluate all sites formerly used to support early MED/AEC nuclear work and determine whether the sites need decontamination and/or control.

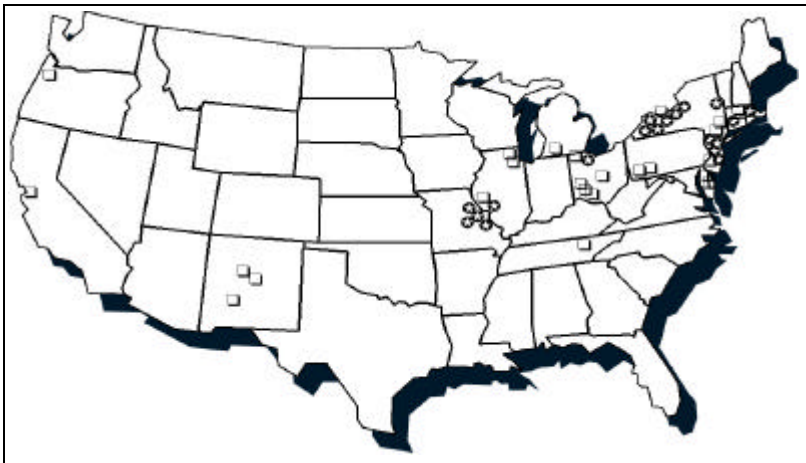
- Decontaminate and/or apply controls to these sites so they conform to current applicable guidelines.

- Dispose of and/or stabilize all generated residues in an environmentally acceptable manner.

- Accomplish all work according to appropriate federal laws and regulations, and local and

state environmental and land use requirements to the extent permitted by federal law and applicable DOE orders, regulations, standards, policies, and procedures.

- Certify the sites for appropriate future use.



✪ Remedial Action Ongoing or Planned

❑ Remedial Action Complete

▲ Owned or Leased Site

✣ Assigned by Congress

★ NPL Site

ST. LOUIS DISTRICT

▲✣★ Latty Avenue Properties Hazelwood, MO

✣★ St. Louis Airport Site, St. Louis, MO

★ St. Louis Airport Site Vicinity Properties, St. Louis, MO

St. Louis Downtown Site St. Louis, MO

Madison Site, Madison, IL

PHILADELPHIA DISTRICT

DuPont & Company, Deepwater, NJ (Philadephia)

BALTIMORE DISTRICT

W.R. Grace & Company, Curtis Bay, MD

NEW ENGLAND DISTRICT

CE Site, Windsor, CT (New England)

★ Shpack Landfill, Norton, MA (New England)

Ventron, Beverly, MA

NEW YORK DISTRICT

▲✣★ Maywood Site, Maywood, NJ

▲✣★ Wayne Site, Wayne, NJ

▲ Middlesex Sampling Plant, Middlesex, NJ

▲✣ Colonie Site, Colonie, NY

BUFFALO DISTRICT

▲ Niagara Falls Storage Site Lewiston, NY

Ashland 1, Tonawanda, NY

Ashland 2, Tonawanda, NY

Linde Air Products, Tonawanda, NY

Seaway Industrial Park, Tonawanda, NY

Bliss & Laughlin Steel, Buffalo, NY

Luckey Site, Luckey, OH

Painesville Site, Painesville, OH

COMPLETED SITES (24)

Kellex/Pierpont, Jersey City, NJ (1981)
Acid/Pueblo Canyon, Los Alamos, NM (1982)
Bayo Canyon, Los Alamos, NM (1982)
University of California, Berkley, CA (1982)
Chupadera Mesa, White Sands Missile Range, NM (1984) *
Middlesex Municipal Landfill, Middlesex, NJ (1984)
Niagara Falls Storage Site Vicinity Prop., Lewiston, NY (1986)
University of Chicago, Chicago, IL (1987)
National Guard Armory, Chicago, IL (1988)
Albany Research Center, Albany, OR (1991)
Elza Gate Site, Oak Ridge, TN (1992)
Seymour Specialty Wire, Seymore, CT (1993)
Baker and Williams Warehouses, New York, NY (1993)
Granite City Steel, Granite City, IL (1993)
Aliquippa Forge, Aliquippa, PA (1994)
C.H. Schnoor, Spingdale, PA (1994)
Alba Craft, Oxford, OH (1995)
HHM Safe Co., Hamilton, OH (1995)
Associate Aircraft, Fairfield, OH (1995)
General Motors, Adrian, MI (1995) *
Chapman Valve, Indian Orchard, MA (1995)
Baker Brothers, Toledo, OH (1996) *
B&T Metals, Columbus, OH (1996) *
New Brunswick Site, New Brunswick, NY (1996) *

*Requires certification documentation

Figure 2.1. 46 FUSRAP Sites in 14 States

3. PROGRAM TRANSFER

The Fiscal Year 1998 (FY98) Energy and Water Development Appropriations Act, Public Law 105-62, provided $140 million to the U.S. Army Corps of Engineers (USACE) for FUSRAP administration and execution and provided for the transfer of any unexpended balances of prior appropriations into this account. As presented in the conference report, Congressional expectations include:

- Transfer the program from DOE to USACE for program execution
- Gaining significant cost and schedule efficiencies by having the USACE manage FUSRAP.
- A smooth transition from DOE to USACE.
- Project execution in accordance with DOE's current schedules, with improvement in overall execution performance.
- USACE would continue to operate within the existing contract framework until it expires in June 1998, to minimize disruption to ongoing operations.
- USACE would submit to the Appropriations Committee within 90 days of enactment, a report on its review of DOE's baseline cost, scope, schedule, and technical assumptions for each of the cleanup sites, and determine what actions can be taken to reduce costs and accelerate cleanup activities.
- USACE should determine if it is possible and/or reasonable to meet DOE's proposed 2002 completion date and report to the Committee on Appropriations on what steps must be taken to meet this date.

Appendix A presents the congressional bill and associated conference report language.

4. DEFINITION OF DOE PROGRAM

DOE made multiple FUSRAP commitments (both site-specific and programmatic) to stakeholders and developed a series of draft plans outlining a range of completion cost estimates and schedules. This Section summarizes USACE's review of the FUSRAP technical, cost, and schedule data as of September 30, 1997. This summary includes the key assumptions DOE made in proposing to complete the majority of the FUSRAP by 2002 and associated major DOE commitments (verbal and written) that FUSRAP stakeholders expect USACE to honor. This Section is based on information obtained from various DOE documents as provided by DOE's prime contractors.

4.1 PROGRAM STATUS AT TIME OF TRANSFER

The remaining portion of FUSRAP consists of 22 sites comprised of 48 operable units. An operable unit is an organizational division of a site based on geography, phase of work, or specified problem area. Operable units provide a way to organize and track cleanup operations. Table 4.1 presents the overall FUSRAP status in relation to the seven major phases of the cleanup process: Preliminary Assessment/Site Investigation (PA/SI), Remedial Investigation/Feasibility Study (RI/FS), Interim Actions, Record of Decision (ROD), Remedial Design/Remedial Action (RD/RA), Project Close-out, and Operation and Maintenance (O&M).

Table 4.1. FUSRAP Program Status as of September 30, 1997*
(Operable Unit Summary Status (%) By Cleanup Phase)

	PA/SI (a)	RI/FS (b)	Interim Action (c)	ROD (d)	RD/RA (e)	Project Close-out (f)	O&M (g)
Complete	96%	48%	15%	0%	0%	0%	0%
In process	4%	33%	27%	0%	0%	0%	7%
Not initiated	NA	19%	43%	100%	100%	100%	93%

* Appendix B provides a detailed status breakdown of operable units for various sites.

As Table 4.1 shows, significant work remains to be done on the 22 FUSRAP sites:

a. 4% of the operable units require that the PA/SI be completed.
b. 52% of the operable units require that the RI/FS be initiated/completed.
c. 70%of the operable units require that Interim Actions be initiated/completed.
d. 100% of the operable units require that RODs be initiated/completed.
e. 100% of the operable units require that RD/RA be initiated/completed.
f. 100% of the operable units require that project closeout be initiated/completed.
g. 93% of the operable units do not have ongoing O&M in place (some operable units will require post remedial action O&M).

4.2 FINANCIAL STATUS

At the time of the program transfer from DOE to USACE, USACE inherited an estimated total of $22.6 million in prior unpaid FUSRAP commitments. DOE also transferred to USACE $22.7 million for FY97 unliquidated obligations and associated funding. The $140 million appropriated in the FY 98 Energy and Water Development Appropriations Act has been applied against DOE's FY 98 planned program of $123 million. The remaining funding will be applied to the sites based upon execution needs and requirements. The current FY98 work program is provided in more detail in Appendix C.

4.3 DOE LIFE CYCLE COST AND SCHEDULE

DOE developed a series of baseline estimates that show FUSRAP completion ranging from 2002 to 2016 with total life cycle costs ranging from $1.47 billion to $2.50 billion. Table 4.2 summarizes the Life Cycle Cost and Schedule as reported by DOE for FUSRAP in various planning documents.

The draft accelerated cleanup plan life cycle cost of $1.47 billion consisted of $488 million expended through FY96, approximately $73 million appropriated in FY97, and a constant funding stream of $182 million from FY98 through FY2002. At the time of appropriation transfer from DOE to USACE, DOE had established the FY98 work program based on draft accelerated cleanup plan and anticipated project funding level of $123 million. The actual appropriation was $140 million. None of the DOE estimates included costs associated with requirements for groundwater treatment and long-term operations and maintenance, including monitoring of completed projects.

Table 4.2. DOE FUSRAP Life Cycle Cost and Schedule Plans

	Document	Date	Number of Sites	Fiscal Year Completion Date	Life Cycle Cost ($ Million)*
1.	Project Plan	Mar 1984	21	1995	322
2.	Project Plan - Rev. 1	Apr 1985	30	2001	675
3.	Project Plan - Rev. 2	Sep 1987	33	2002	960
4.	Project Plan - Rev. 3	Apr 1992	46	2016	2,500
5.	BEMR**	Mar 1995	46	2016	2,500
6.	BEMR**	June 1996	46	2016	2,500
7.	Ten Year Plan	Feb 1997	46	2006	1,993
8.	Accelerated Cleanup Plan (ACP)	Jun 1997	46	2002	1,471

*Life cycle cost of a project begins with the start of a project through its completion date. Dollar amounts are based on year of funds expenditure

** Baseline Environmental Management Report (BEMR)

4.4 COMPARISON OF DOE 2006 TEN YEAR PLAN AND DRAFT ACCELERATED CLEANUP PLAN

DOE revised the 2006 Ten Year program plan for FUSRAP in June 1997, developing the draft accelerated cleanup plan. Compared to the 2006 Ten Year Plan, released in February 1997, the draft accelerated cleanup plan accelerated the completion from 2006 to 2002 and reduced estimated costs of the program by over $500 million. The total life cycle cost for the 2006 Ten Year Plan was estimated at $1.993 billion, with remaining costs from FY97 through completion of $1.5 billion. For the draft accelerated cleanup plan, the total life cycle cost was estimated at $1.471 billion. As of FY97, total remaining life cycle costs were $983 million. The reduction in schedule from 2006 to 2002 was made primarily by reducing program scope, i.e. eliminating portions of specific projects, or assuming that DOE would be able to modify the cleanup criteria. Figure 4.3 presents DOE's assumed funding profile for the 2006 Ten Year Plan and the draft accelerated cleanup plan.

A comparison of the two DOE plans shows the annual funding requirement remains constant at $182 million per year. However, the significant reduction in total cost and time-to-complete between the two alternatives is derived from major scope reductions from the 2006 Ten-Year Plan. The draft accelerated cleanup plan does not represent a faster and cheaper way of accomplishing the same scope of work as defined in the 2006 Ten-Year Plan. The draft accelerated cleanup plan simply represents a revised cost and schedule for a significantly smaller program scope of work. The following provides details of some of these scope reductions:

Major Programmatic Changes

- The 4-year reduction in program duration eliminated program management for the last four years and eliminated the escalation of cost estimates attributable to inflation during this period.

- DOE reduced the contingency allowance from about 20% to about 15%.

Major Technical Changes

- The Niagara Falls Storage Site remedy changed from removal of high concentration residues with offsite disposal ($219 million reduction) to long-term Surveillance & Maintenance.

- The St. Louis Downtown Site (SLDS) and the St. Louis Airport Site (SLAPS) remedy changed from "industrial" to "restricted industrial" land use (SLDS reduced $96 million, SLAPS reduced $154 million).

- Neither of DOE's plans included long-term Surveillance & Maintenance costs.

- Based on the characterization results received in the Fall of 1997, it appears that both plans significantly underestimated the extent of contamination and the scope of the remediation of the Luckey, OH site.

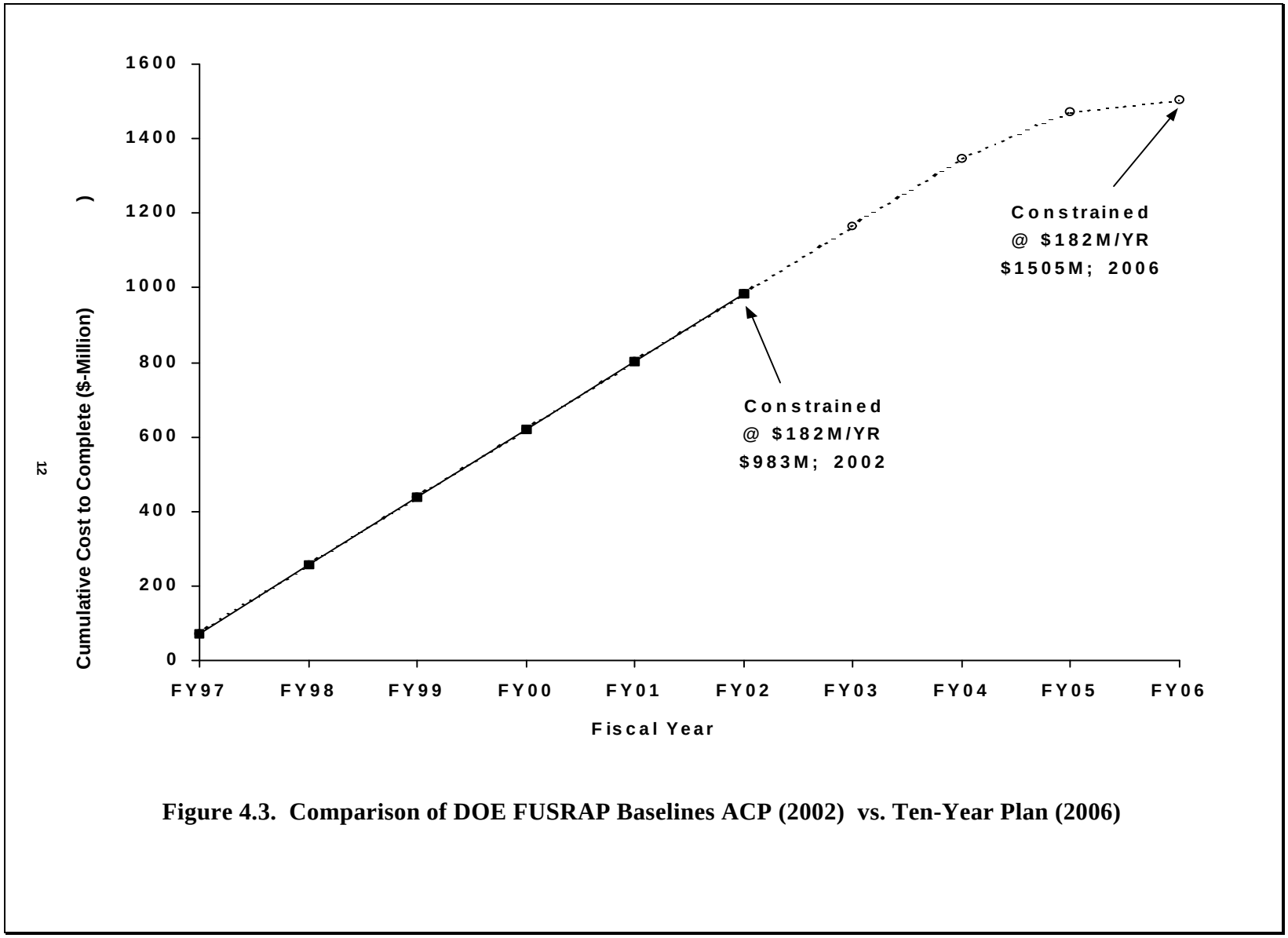


Figure 4.3. Comparison of DOE FUSRAP Baselines ACP (2002) vs. Ten-Year Plan (2006)

4.5 DOE COMMITMENTS

DOE attempted to encourage stakeholder input on planning options and to comply with stakeholder requirements, which sometimes led to increases in program costs or schedules. Throughout the FUSRAP program DOE made a series of verbal and/or written commitments to the public, local communities, local officials, and Congress regarding DOE's intentions to remediate FUSRAP sites. In a document called "Community Comments Register for the Formerly Utilized Sites Remedial Action Program" dated October 1997, two programmatic commitments are apparent:

- DOE would not bring outside waste to a community.

- DOE would not use any FUSRAP site as a regional disposal facility.

As of this report, USACE identified the following DOE written FUSRAP agreements:

- **Federal Facilities Agreements (FFA):**

  - Wayne Site, NJ

  - Maywood Site, NJ (includes cleanup criteria determined by EPA and accepted by DOE after a formal dispute process).

  - St. Louis Sites, MO

- **Other Agreements & Actions:**

  - Contribution to the costs of response from W.R. Grace & Company is under negotiation for the Wayne Site.

  - Grant agreements with the States of Missouri, New York, New Jersey, and Ohio to reimburse some of their technical consultation costs.

  - Technical Assistance Grants for the Coalition Against Nuclear Waste in Tonawanda (CANiT), NY and the Concerned Citizens of Maywood, NJ.

  - Memorandum of Understanding (MOU) between DOE and the Borough of Maywood, NJ, 10 August 1984.

  - MOU between DOE and Borough of Middlesex, NJ, November 1979.

  - Agreement between DOE and Morton International, Inc., regarding work at the Ventron Site in Beverly, MA, 18 March 1996.

  - Numerous real property access agreements, some of which include terms in the nature of indemnification for the owner, terms for specified work, and/or compensation payments to the owner.

5. USACE ASSESSMENT OF EXISTING PROGRAM

USACE conducted the programmatic assessments through the use of two temporary teams: an Oak Ridge Transition Team, and a Program Assessment Team. The individual project assessments represent the work of the local USACE districts as well as the findings of the USACE Program Assessment team. The six-person Program Assessment team drew USACE experts from the Hazardous, Toxic, and Radioactive Waste (HTRW) Center of Expertise in Omaha, NE, the Omaha HTRW Design District, the Baltimore HTRW Design District, and the Northwestern Division Missouri Regional Office. The team was comprised of experts in the fields of HTRW management, HTRW technical requirements, HTRW construction contracting, health physics and safety, HTRW laws and regulations, and real estate. During November 1997, the Program Assessment Team visited each of the six USACE districts assigned responsibility for the remediation of the active FUSRAP projects, and most of the actual project sites. The four-person Oak Ridge Transition Team (assembled personnel from the Nashville HTRW Design District, the Baltimore HTRW Design District, and the HTRW Center of Expertise in Omaha) brought expertise in HTRW program and project management, contracting, and contract management. The programmatic observations presented in this section reflect USACE's experience in managing and executing similar environmental remediation programs for the Department of Defense and for other federal agencies such as the Environmental Protection Agency (EPA).

5.1 ASSESSMENT OF CONTAMINANT TYPES AND HEALTH AND SAFETY RISK

FUSRAP sites contain levels of radioactivity above natural background. However, given the current land usage and the type of contaminants present, there does not appear to be any significant immediate threat to the public and the environment.

With the exception of the Niagara Falls Storage Site (NFSS) at Lewiston, NY, the concentration of radioactive contaminants at FUSRAP sites is low relative to NRC standards. Predominantly, alpha-emitting uranium-238, thorium-230, radium-226, and associated decay products, including radon-222 (radon gas), contaminate the sites. A smaller number of sites are contaminated with thorium-232 and its daughter products. These contaminants will remain radioactive indefinitely. If the current land use were to change at these sites, health risks from chronic exposure and ingestion/inhalation would increase.

The concentration of radioactive contaminant residues at NFSS is much greater than at other FUSRAP sites. However, the materials currently reside in a waste containment structure. In their present configuration, the contaminants present no significant immediate health threat to the public or the environment.

The status of radiological characterization varies greatly from site to site within FUSRAP. For example, at the Wayne, NJ site, much work remains to define the type and extent of subsurface radioactive contamination. At the Luckey, OH site, characterization work is currently ongoing and will continue through FY98. At the Middlesex, NJ site, the characterization is sufficient to make decisions regarding final waste disposition.

Many FUSRAP sites are chemically contaminated as well. Toxic chemicals include heavy metals (e.g., lead and beryllium), polychlorinated biphenyl, volatile organic compounds, and pesticides. At most sites, the lateral and vertical extent of the chemical contamination is not sufficiently defined. While the long term exposures by ingestion, inhalation, and/or absorption of these contaminants may increase risks to human health, no immediate threat to human health or the environment is evident, given what is known of the types and concentrations of the reported chemicals. However, as a high priority throughout its administration and execution of the FUSRAP program, USACE intends to continue to maintain the safety and health of workers, both government and contractor, and ensure protection of the public health and the environment.

DOE viewed its FUSRAP responsibilities for cleanup of both radioactive and chemical contaminants as being affected by whether the site was owned by DOE. DOE-owned facilities were monitored for any chemical contamination, whether or not due to DOE-related activities. However, at non-DOE owned FUSRAP sites, DOE guidance indicated that it did not have authority to remediate non-DOE chemical or radioactive contamination unless it was commingled with DOE-related residual material, or might impact clean-up activities. Moreover, sites subject to chemical contamination without radioactive contamination were not considered by DOE to be within the scope of FUSRAP responsibilities.

5.2 DOE ORGANIZATION AND CONTRACTING STATUS

5.2.1 Organization

The Assistant Secretary for Environmental Management at DOE Headquarters was responsible for overall management and execution for FUSRAP, including the technical, administrative, and financial management of the program. The DOE Headquarters program staff consisted of up to five DOE personnel, four contractor support staff, with additional support from three other contractors. Project Management was assigned to the Former Sites Restoration Division of the Oak Ridge Operations Office at Oak Ridge, Tennessee. The DOE Oak Ridge FUSRAP group consisted of 7 site managers, along with management and administrative staff. The primary functions of the site managers included interface with stakeholders, tracking contractor activities at the sites, and managing site-specific budgets and schedules. The small number of Federal site managers resulted in no ongoing Federal presence at the sites, with the exception of an emerging presence at St. Louis in FY97. The DOE project management contractor was responsible for managing and overseeing the day-to-day work of other contractors. In effect, substantial project management and direction was performed by DOE's contractor.

5.2.2 Contracting Status

DOE managed and executed FUSRAP with two primary contracts: a time-and-materials contract with Bechtel National Inc. (Bechtel) and a cost-plus-fixed-fee contract with Science Applications International Corporation (SAIC). Bechtel provided overall program management functions to include budgeting, scheduling, and task definition. Bechtel was responsible for all remedial actions at sites, either by performing the work with in-house staff or by procuring subcontractors

to accomplish field remediation activities. SAIC served as the principal environmental studies contractor for the program preparing Engineering Evaluations/Cost Analyses (EE/CAs) and RODs to satisfy NEPA requirements, as well as performing a variety of technical activities (field sampling plans, risk assessments, feasibility studies, hazard assessments, etc). Oak Ridge National Laboratory (ORNL), Oak Ridge Institute for Science and Education (ORISE), and Argonne National Laboratory (ANL) also provided support services to the program at the direction of DOE headquarters. ORNL and ORISE performed radiological surveys. These contractor organizations performed site designation, post-remedial action verification as well as miscellaneous technical support functions. ANL performed a range of scientific and technical support to both DOE Headquarters and the Oak Ridge office.

Each of the prime contracts was a "level of effort" or "best efforts" contract with potentially little incentive to achieve cost efficiencies, savings or schedule acceleration. As administered by DOE, this arrangement resulted in duplication of effort, multiple handoffs between the various contractors, and unnecessary program costs. Generally, task scope definition to the contractors was not specific. There were frequent changes and modifications to approved work programs, resulting in out-of-scope contractor requirements and increased costs.

5.3 DOE AUTHORITIES

DOE conducted work at the FUSRAP sites under several statutory authorities. FUSRAP began in 1974 when DOE's immediate predecessor, the Energy Research and Development Administration (ERDA), determined that sites in support of the early atomic weapons program were not adequately decontaminated to 1970's health and safety standards. These sites originally operated by contractors whose contracts included some form of indemnification against certain costs and liabilities. DOE elected initially to undertake additional cleanup work in the late 1970s under its implied Atomic Energy Act health and safety authority. Thereafter, Congress authorized and funded the program though annual appropriation acts.

With the passage of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 et seq.), additional environmental restoration requirements and standards became applicable to federal facilities. FUSRAP addressed sites that did not meet the newly applicable human health and environmental standards. In the Conference Report accompanying the FY 1984 and 1985 Energy and Water Development Appropriations Acts, Congress requested that DOE cleanup five sites in Missouri, New Jersey, and New York. DOE added these sites to FUSRAP because of their similarity with or proximity to sites in the program, even though they did not meet the programmatic standards for inclusion in FUSRAP. The Environmental Protection Agency placed two of these sites on the National Priorities List (NPL) either shortly before or after the sites were added into FUSRAP.

At least two sites, the NFSS in New York and the Middlesex Sampling Plant in New Jersey, were United States property since the 1940s, and eventually transferred to DOE for accountability. These sites were managed in the past under other DOE programs, but were eventually included in FUSRAP by DOE. These sites operated as DOE federal facilities. In the case of the NFSS, significant environmental site decisions were made under the National Environmental Policy Act

(NEPA, 42 U.S. C. 4231 et seq.).

At many sites, DOE conducted a series of CERCLA removal actions as documented in EE/CA reports and Action Memoranda, to remove above-surface waste materials in storage piles or inside buildings. None of the FUSRAP sites have a final CERCLA ROD selecting a final remedy for the site. Some of the Tonawanda, NY sites were the subject of a proposed plan, and anticipated ROD. However, neither a ROD nor the CERCLA process required to issue a final ROD has been accomplished at any other site. At many of these sites, the National Oil and Hazardous Substances Contingency Plan (NCP) (40 CFR Part 300) Remedial Investigation (RI) and Feasibility Study (FS) process is not adequately completed to characterize all wastes present or document the analysis of alternatives. In recent years, DOE conducted environmental response actions at most of the FUSRAP sites in accordance with CERCLA and the NCP. DOE also continued to conduct evaluations of certain site activities under NEPA. DOE also conducted some cleanup activities under the AEA decision-making authorities to include the management of interim storage or disposal sites and the cleanup of building interiors. Pursuant to the AEA, DOE also established cleanup standards and requirements to apply to its own missions and contractors. These requirements are specified in documents that are commonly known as "DOE Orders," and are internal DOE documents not formally promulgated Federal regulations published in the Code of Federal Regulations.

5.4 DOE CLEANUP OBJECTIVES AND CRITERIA

A major challenge that DOE faced, and indeed one that USACE will face as well, is the determination of an appropriate approach to establish general site cleanup criteria. DOE, the Nuclear Regulatory Commission (NRC), and EPA all have standards for the cleanup of the radioactive materials. Each applies its standards in a somewhat different manner. The ultimate radiation dose is a function of the type and extent of radioactive contamination at a particular site coupled with the site's anticipated land use. The different approaches used by these agencies and the variability in potential land uses (which are determined by the site owner and the local community) results in the need to negotiate these issues for each specific cleanup.

In selecting a remedy at a FUSRAP site under CERCLA, the NCP requires that nine CERCLA criteria be met. The first two threshold criteria state that the cleanup must be protective of human health and the environment, and that it must meet applicable or relevant and appropriate requirements (ARARs). ARARs vary from site to site, particularly for the types of contaminants at these sites. In some cases, there are no promulgated state standards, and the default position of the states is often to demand cleanup to levels that are near or below background, below detection limits, or below standards of exposure accepted for industrial sites with similar contamination.

To compound this problem, DOE often had difficulty gaining acceptance of the determination from regulatory agencies and stakeholders of the appropriate ARARs and cleanup criteria. The DOE site manager had primary responsibility for developing and recommending ARARs for approval at DOE Headquarters. This delegation of authority to the field provided flexibility. However, it also placed a large burden upon the DOE site manager to develop the appropriate cleanup criteria. Site managers followed legal requirements and considered a variety of factors

including likely future land use and the views of regulatory agencies, public opinion and stakeholders.

Future land use is an important factor in the determination of ARARs and cleanup criteria. Industrial land use requirements are not as restrictive as residential land use. At some sites, the affected public urged remediation of industrial facilities to residential criteria even though the site appeared more likely to remain industrial.

The DOE method of operation resulted in the negotiation and setting of cleanup criteria and disposal requirements on a project-to-project basis. The inevitable pressures from local communities and regulators tended to push the cleanup criteria to a more conservative level, with a consequent impact on project costs and schedules.

5.5 USACE ASSESSMENT OF DOE 2002 COMPLETION DATE

USACE assessed the 2002 completion date as proposed by DOE in the draft accelerated cleanup plan. Site details of this assessment are in Appendix D. In the view of USACE, there are major technical shortcomings to the plan as proposed in the draft accelerated cleanup plan that prevent the FUSRAP program from being entirely completed by 2002. The major programmatic and site-specific problems are listed below:

Programmatic Problems

- Potential groundwater contamination at a number of the major sites (Missouri, New Jersey, Ohio, and several of the New York sites) is not addressed. A defined scope of potential contamination is lacking at major program sites.

- Characterizations necessary to support final decision documents (i.e., RODs) and final waste disposal are not complete. In addition, DOE schedules did not include a requirement for project close out in accordance with CERCLA.

- The schedules do not reflect the time and effort to determine and negotiate the appropriate federal cost contribution in sites involving Potentially Responsible Parties (PRPs) and conduct the necessary Resource Conservation and Recovery Act (RCRA) coordination with regulators.

- Neither of the DOE plans include costs for long-term operations and maintenance (O&M), such as monitoring.

Site-Specific Problems

- The draft accelerated cleanup plan does not reflect final closure of the NFSS.

- Neither the 2006 nor the 2002 DOE plans adequately estimate the extent of contamination from non-radioactive beryllium at the Luckey, OH site. USACE understands that DOE

committed to cleaning up non-radioactive beryllium at the site.

- The plan does not address closure of those sites with ongoing industrial operations (e.g., Bliss & Laughlin, NY; Madison, IL) that have not allowed access for FUSRAP remediation.

USACE has developed its own alternatives that address the problems and include the full FUSRAP scope as best as it is presently known, for the Luckey site and NFSS. These options are described in more detail in Section 6.

5.6 SUMMARY OF DOE'S REAL ESTATE PROGRAM PRIOR TO THE TRANSITION

DOE provided centralized real estate support to the FUSRAP program from its Oak Ridge Operations Office. DOE used the resources of Bechtel to identify real estate requirements, prepare ownership data, and make contact with impacted landowners. DOE approved all real estate transactions, executed all documents and performed all real estate activities beyond the scope of Bechtel.

5.7 COMMUNITY RELATIONS

DOE's community relations program was well funded and innovative. Clear objectives were set and in most cases met or exceeded every year. However, the objectives often were not integrated into the overall FUSRAP program. For instance, community groups sponsored by DOE sometimes were not broad-based and did not necessarily represent the entire range of stakeholders. At least two of the information centers funded under this program were not located so that the community could have ready access to them. Community technical assistance grants had been provided to some stakeholders, however, USACE has not yet determined the effectiveness of these grants. Another grants program provided funding to the states where FUSRAP sites were located. DOE's community relations program generally included the following activities: coordinating and conducting public meetings; maintaining administrative record/information repositories; preparing and distributing newsletters, press releases, and newspaper ads; holding availability/information sessions with the community; preparing and making community presentations and tours; maintaining fact sheets; maintaining the community relations plan; producing site videos; maintaining and updating World Wide Web Home Page information; and preparing weekly media, stakeholder, and FUSRAP reports.

In addition to these activities, DOE also used the program staff to prepare and renew real estate agreements and fund community working groups. These working groups used the funds to complete studies and reviews of DOE's technical site specific documents.

5.8 DOE SITE DESIGNATIONS, VERIFICATION AND POTENTIALLY RESPONSIBLE PARTY INTERACTIONS

5.8.1 Designation of Sites

DOE developed an internal process for determining the eligibility of sites for FUSRAP. The

process consisted of historical document review followed by survey activity and a limited site sampling to determine if radioactive contaminants associated with historic MED or AEC activities were present at the site and were above established screening criteria. The historic document review was to determine if contractors in support of the early atomic weapons program had conducted work at the site and if the contract included some form of indemnification clause in favor of the contractor. To prioritize sites for funding and inclusion in the program, DOE also performed risk ranking for each site. When DOE Headquarters determined a site was eligible, it issued a memorandum that defined the limits of the FUSRAP site and in some cases defined the radioactive contaminants that were eligible for response under FUSRAP. USACE districts will review the sampling data to ensure that contamination was properly assessed and classified at the remaining 22 sites.

5.8.2 Verification

For those FUSRAP sites determined by DOE to be complete, DOE established a closure verification process that included sampling and analysis by an independent laboratory or consultant. DOE Headquarters would later review this verification. If the established cleanup criteria was met at the site, DOE would publish a Federal Register notice, called a "Certification Docket," declaring the subject site was remediated and clean. However, no CERCLA ROD was issued for any of the FUSRAP sites.

5.8.3 Potentially Responsible Party Interactions

Many of the FUSRAP sites are industrial properties where operations are now and/or have been taking place by owners or operators with commercial interests not related to the actions of DOE's predecessor agencies. Many of these sites have hazardous substances released as a result of their commercial operations through disposal or movement of waste, including radioactive contaminants, as well as other hazardous substances. Several of the sites are currently the subject of regulatory action under either the federal or applicable state RCRA (42 U.S.C. 6901 et seq.), including both currently permitted hazardous waste management areas and areas of corrective action for past releases. By virtue of their ownership and operation activities at the sites, either currently or at the time of disposal of hazardous substances, these parties are PRPs under CERCLA. As such, they are liable for CERCLA response costs at the site for which they are a PRP. This would be especially applicable to CERCLA response costs incurred to remedy contamination resulting from the commercial operations of the PRPs, which were not covered by contract indemnification clauses provided by the MED or AEC support activities. At one site (Wayne, NJ), DOE pursued negotiations with a PRP at that site. The U.S. Department of Justice, is now seeking a contribution to the federal response cost from this same PRP. DOE counsel and FUSRAP program management indicated to USACE they intended to pursue contribution from PRPs at other sites. These actions have not commenced, and appear to have not been discussed with project personnel or regulators at some of the sites. This places DOE and the federal government in a position of using federal funds to accomplish work and then trying to recover an equitable share from liable PRPs. This also relieves PRPs of some of the regulatory and community coordination burden performed by DOE. Consequently, a large effort to recover costs may be needed late in the CERCLA process.

6. USACE MANAGEMENT AND EXECUTION PLAN

Section 6 describes the USACE organizational philosophy and resources to be employed on management and execution of FUSRAP. Like all USACE environmental programs, FUSRAP will be decentrally executed by geographical USACE Districts, supported by USACE HTRW Design Districts and the HTRW Center of Expertise. Headquarters will provide executive direction and management to divisions who will coordinate the actions of the executing districts, supported by a temporary USACE presence in Oak Ridge, TN. This section presents USACE estimates concerning the range of costs and schedules that may be needed to complete the program.

6.1 SCOPE OF PROGRAM

The Fiscal Year 1998 (FY98) Energy and Water Development Appropriations Act, Public Law 105-62, transferred to the U.S. Army Corps of Engineers the responsibility for administering and executing the FUSRAP program. The Act appropriated $140 million to USACE "for expenses necessary to administer and execute the Formerly Utilized Sites Remedial Action Program to clean up contaminated sites throughout the United States where work was performed as part of the Nation's early atomic energy program," and provides for the transfer of unexpended balances of prior appropriations held by DOE.

6.2 USACE EXECUTION PLAN ALTERNATIVES

Figure 6.1.A. presents four scenarios for completing the FUSRAP program at escalated prices. The unconstrained annual funding case results in a baseline program completion by 2006 at a cost to complete of $1.56 billion, or a conservative completion by 2008 at a cost to complete of $2.25 billion. These scenarios vary in their cleanup criteria and goals. Both scenarios are predicated upon remediation criteria that are fully protective of human health and the environment while taking into account cost, regulatory and community acceptance, and land reuse requirements. The baseline program assumes restricted or industrial future land use while the conservative program assumes less restrictive or residential future land use. These two cases represent the optimum cost and schedule combination, requiring an annual funding peak of $323 million and $384 million respectively in FY2000. An annual funding level of $140 million per FY constrains the remaining two cases. These constrained scenarios result in completion dates and costs of 2011 at a cost to complete of $1.88 and 2018 at a cost of $2.89 billion. As the schedule is lengthened, the additional costs result from the additional contractor and USACE management costs, and from the inflated cost of money over the extended time period. Figure 6.1.B. presents the same four scenarios at October 1997 price level.

The difference between the baseline and conservative cleanup goals has a significance influence on cost and schedule only at four sites: Luckey, OH; NFSS, NY; St. Louis Airport Site, MO; and St. Louis Downtown Site, MO. At these four sites, which are presently industrial in nature, the baseline approach assumes remediation to a standard appropriate for industrial sites; the conservative approach assumes unrestricted/residential use.

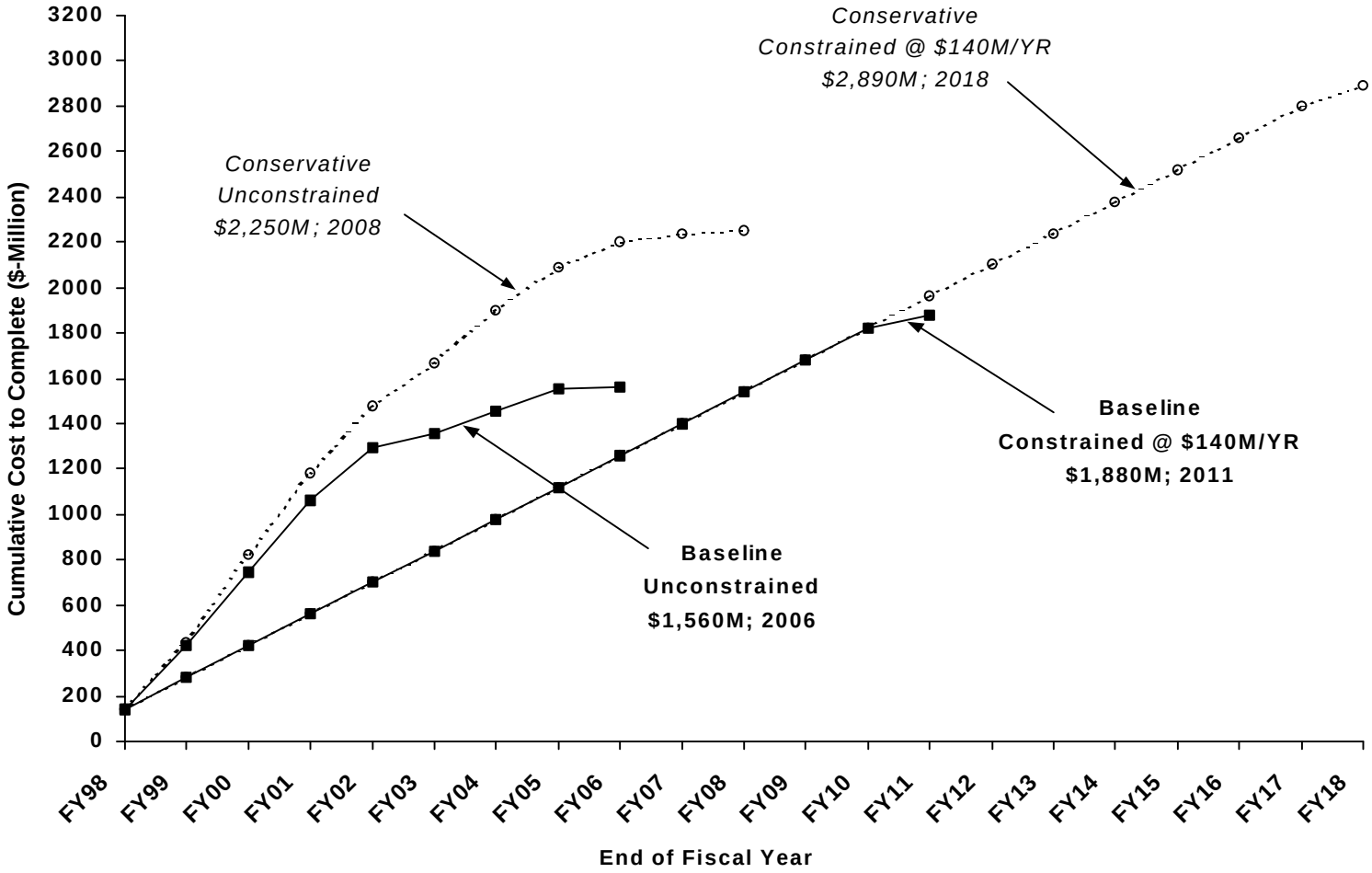


Figure 6.1.A. FUSRAP Completion Scenarios Based Upon Cleanup Criteria and Funding Profile (Escalated Prices)

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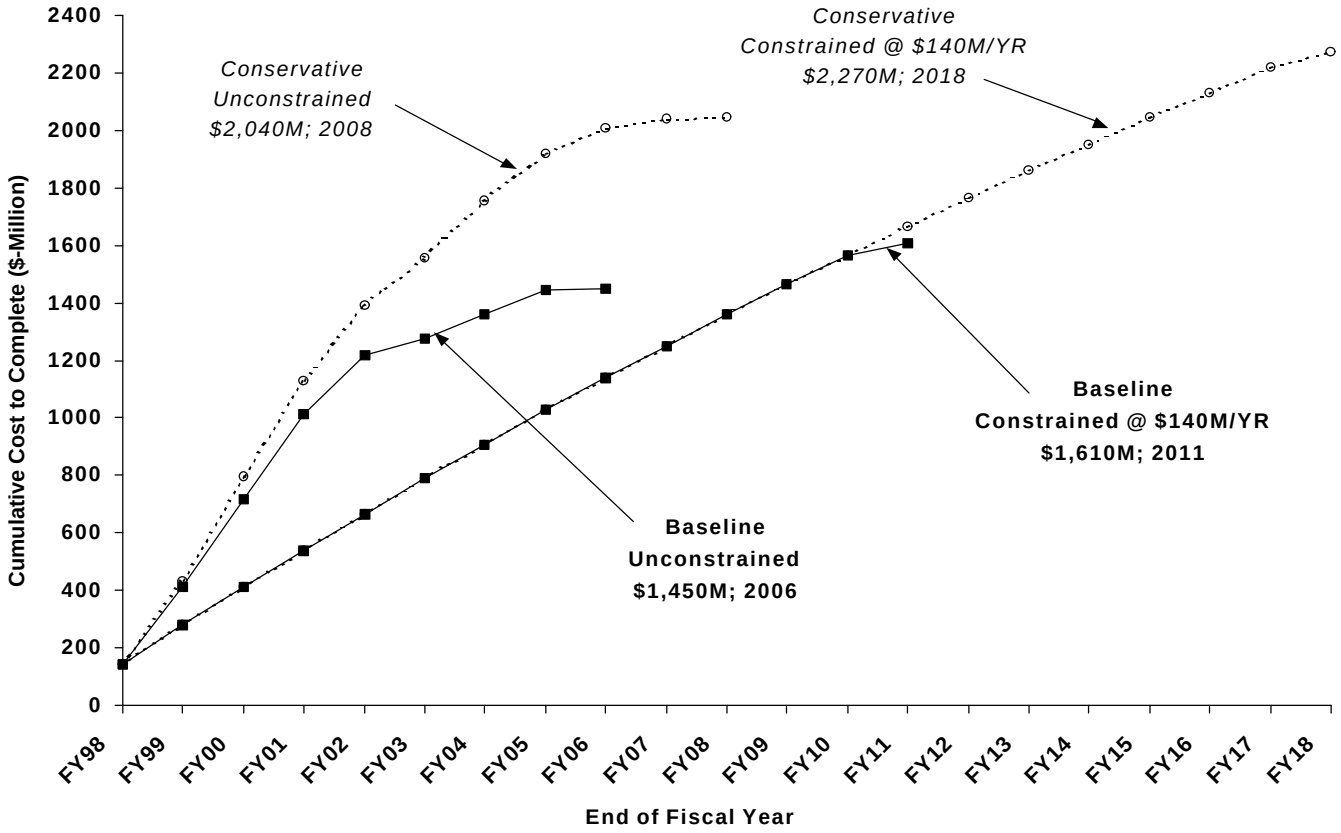

Figure 6.1.B. FUSRAP Completion Scenarios Based Upon Cleanup Criteria and Funding Profile (October 1997 Price Level)

Figure 6.2 presents the cost and schedule differences when the two principle variables, annual funding limits and cleanup criteria, are changed. There is some uncertainty over the extent to which less costly cleanup criteria can be implemented at the remaining FUSRAP sites. At a minimum, it will take additional time to coordinate these criteria with the local communities and regulators. Conservative cleanup criteria (i.e., residential standards) have been applied to most remediated sites. Interim actions have also been performed utilizing conservative cleanup criteria with the expectation that additional final actions would be completed in a similar manner when funding became available. In modifying the projected completion date from 2006 to 2002, DOE assumed that it might be able to find support for less costly cleanup criteria, except at Luckey, OH and NFSS. Because the revised cleanup criteria used in formulating the draft accelerated cleanup plan have not yet been coordinated with or accepted by the affected stakeholders, these interests could object. USACE could face a significant challenge in gaining stakeholder acceptance for such standards.

Under the USACE's Baseline program at the $140 million level, it is anticipated that 12 of the 22 sites would have remediation completed through CERCLA closeout by 2002. Included in the 12 are Ashland 1 and 2, Seaway Industrial Park, Bliss and Laughlin Steel, and Linde Air Products, in the Buffalo, NY, area; Colonie, NY; Painesville, OH; Shpack and Ventron sites, MA; Madison, IL; and Middlesex and Wayne, NJ.

USACE could complete remediation at four additional sites (Maywood, NJ, W.R. Grace site, MD, CE site, CT, and DuPont Chambers Works site, NJ) by the fall of 2002 if the program criteria were significantly modified, a highly unlikely scenario. Closeout under CERCLA would require up to an additional year. In order to make cleanup possible at these sites by 2002, it would require, at a minimum:

- Additional annual funding over the projected base budget of $140 million on the average of $40 million starting in FY 99, through FY 02.
- Agreement by stakeholders and regulators permitting material that is under highways or otherwise not easily accessible to remain.
- Not pursuing PRP activities and cost recovery.
- Negotiating a buy out with existing owners for current activities and future liabilities.

Even with these modifications, there remain sufficient uncertainties with regards to site characterizations and ongoing and potential legal actions to make completion by 2002 questionable.

It is USACE's belief that six sites could not be completed by 2002. The four sites in the St. Louis area should have remediation completed in 2004, but not the CERCLA process. In order to make cleanup possible at these sites by 2002, it would require: the states and stakeholders to allow material to remain in disposal cells or to be disposed of in waste facilities within the state; additional appropriations; not pursuing PRP activities; and deviating from the CERCLA process. The remaining two sites, Niagara Falls Storage Site and Luckey, will extend beyond 2004. These sites are in the early stages of characterization and pose a major technical challenge for site cleanup.

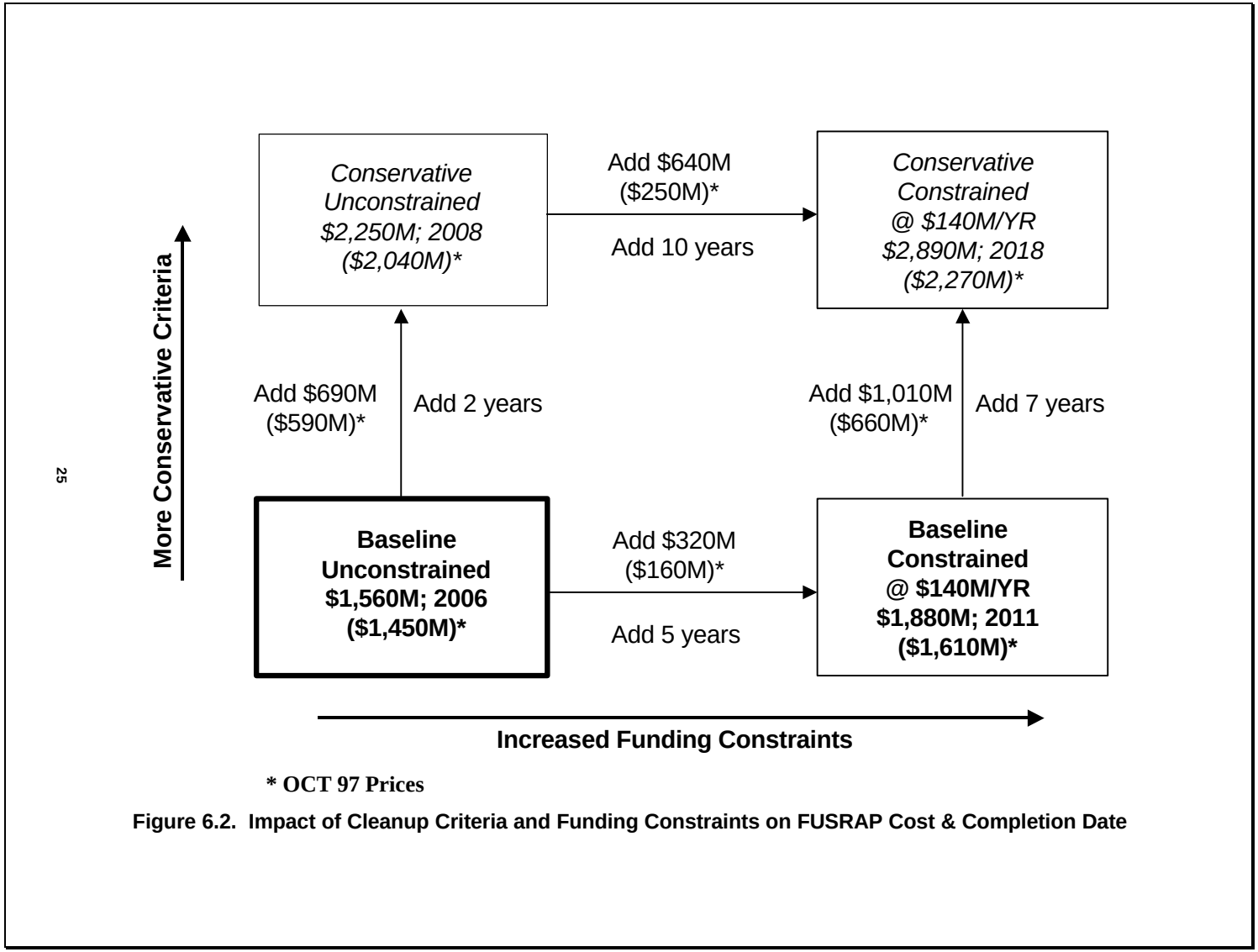

Figure 6.2. Impact of Cleanup Criteria and Funding Constraints on FUSRAP Cost & Completion Date

The site-specific reports used as the basis for developing these programmatic recommendations are detailed in Appendix D.

6.3 USACE ORGANIZATION AND RESOURCES

USACE expects to employ an execution-focused organization similar to the Defense Environmental Restoration Program Formerly Used Defense Sites (DERP-FUDS) program. USACE geographic divisions and districts are responsible for project execution supported by HTRW Design Districts and the HTRW Center of Expertise. The USACE FUSRAP organization and district site assignments are presented in Figure 6.3.

USACE will execute FUSRAP within existing resource ceilings. Executive Direction and Management activities of USACE Headquarters and division offices will be accomplished with General Expense funding.

6.4 USACE AUTHORITIES

The primary authority of USACE to conduct FUSRAP is the FY98 Energy and Water Development Appropriation Act, Public Law 105-62. Congress directed that USACE provide necessary environmental response actions at FUSRAP sites, with specific funds appropriated to perform this work.

USACE will remediate FUSRAP sites in accordance with the nine criteria in the CERCLA process, as currently used at certain Superfund sites that are contaminated with similar radioactive waste (uranium; thorium; radium). CERCLA is the basic federal law that governs federal response to releases of hazardous substances, pollutants, and contaminants. The radioactive contaminants of concern at FUSRAP sites are generally hazardous substances and, therefore response to releases of these materials, and the process and degree of remediation, are governed by CERCLA. The main implementing regulation for CERCLA is the NCP (40 CFR Part 300). Under CERCLA and the NCP, a federal agency responding to a release of a hazardous substance must; investigate and characterize the release, evaluate alternatives for response including consideration of the nine mandatory criteria to establish the degree of cleanup to be achieved, provide this information to the public, seek public comment on a proposed remedial action plan; and formally select a final remedy in a ROD. This final remedy is then implemented at the site, and is completed when the ROD requirements are satisfied, including the potential for assessments of effectiveness every five (5) years and long-term operation and maintenance. During the course of investigation and remedy selection, the NCP provides a removal process under which temporary or interim response actions may be conducted which will control the further release of the hazardous substances, or achieve a portion of the final remedy for the site. Such interim removal actions must be consistent with the final remedy although they need not achieve the degree of cleanup required of the final remedial action.

No RODs had been issued for any of the 22 remaining sites currently in FUSRAP. At some sites, the removal actions taken so far may be adequate to allow a ROD to be issued, pending a finding that no further response is required. In other cases, additional CERCLA site characterization, documentation, and other work will be required to support a final ROD.

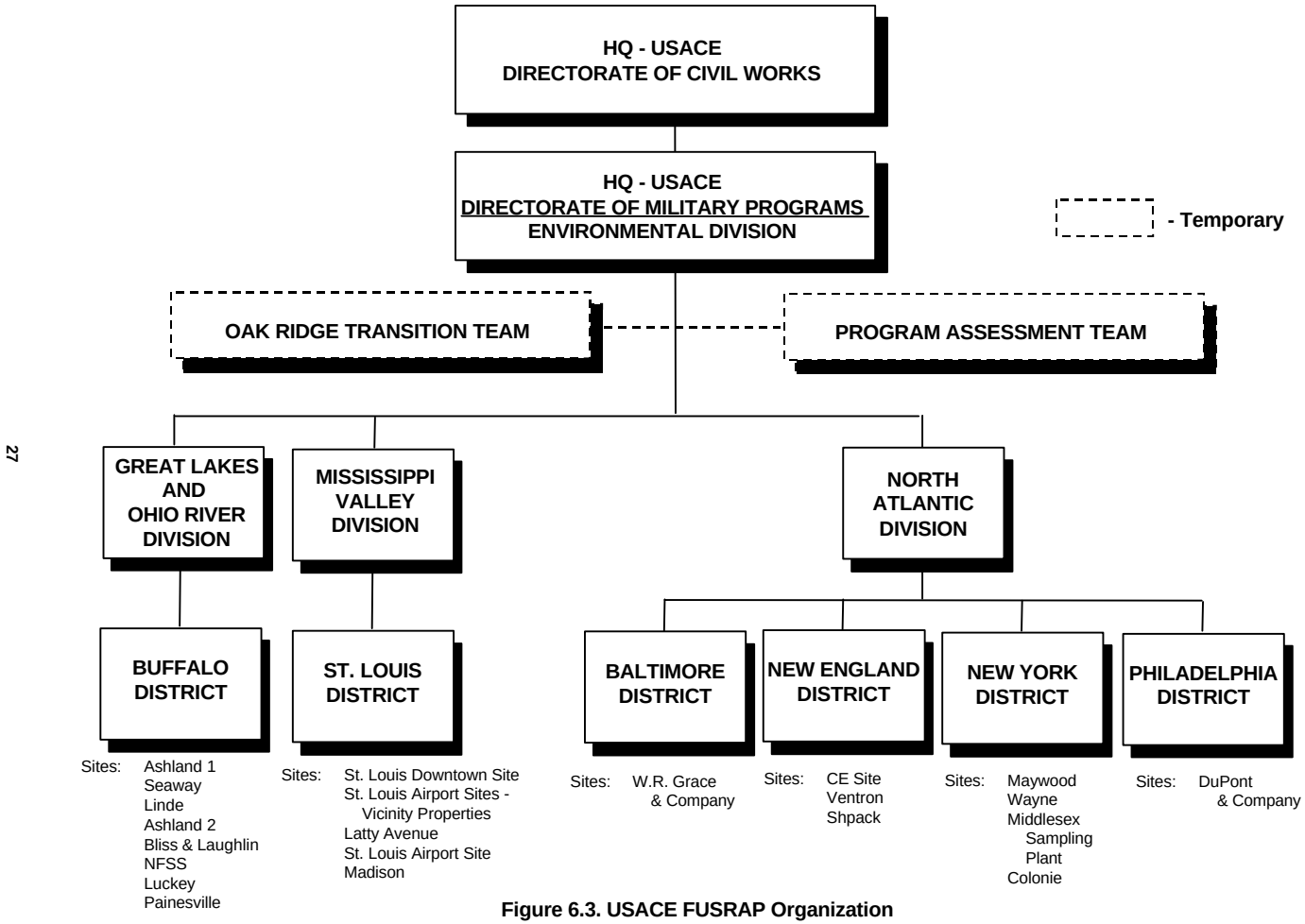

Figure 6.3. USACE FUSRAP Organization

6.5 USACE REMEDIATION OBJECTIVES AND CLEANUP CRITERIA

USACE's objective in the execution of its FUSRAP responsibilities is to consistently apply the CERCLA process of weighting the nine CERCLA criteria to select remedies based on remediation criteria which are fully protective of human health and the environment, while taking into account cost, schedule, ability to implement and stakeholder desires. USACE will work with the regulators and stakeholders in an effort to ensure that taxpayer dollars are spent prudently, effectively, and in a manner that will fully protect human health and the environment. USACE will also follow the applicable legal requirements for worker health and safety.

To achieve this objective, USACE will follow the procedures specified in CERCLA and the NCP to establish specific remediation criteria. An example of the application of the CERCLA process for FUSRAP sites is presented in Figure 6.4. USACE will follow the specific requirements of the RCRA for offsite disposal and also satisfy the requirements of NEPA through the CERCLA process.

In some cases, perpetual easements to restrict future land use could be an option. Removal of some of the uncertainty surrounding future land use could, in some instances, make cleanup to a lower (e.g., industrial as opposed residential) standard more acceptable to stakeholders. The acquisition cost of such easements could be minor compared to the potential cost savings to be achieved by establishing a less conservative cleanup standard.

Although the NCP does not specify cleanup criteria for radionuclides or their contaminants, it provides nine criteria for determining the appropriate cleanup levels. The two threshold criteria require that the remediation be protective of human health and the environment and follow ARARs. To ensure remedies are fully protective of human health, USACE will use the EPA guidance for performing risk assessments and Superfund EPA Risk Assessment Guidance. The following ARARs appear to be generally applicable to radioactive waste contaminated sites (other ARARs would apply if RCRA-regulated waste is also present):

- Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 CFR Part 192),
- NRC Decommissioning Rule (10 CFR Part 20, Subpart E), and
- Promulgated state regulations.

While the aforementioned ARARs will form the framework for development of remediation standards for FUSRAP, the specific criteria for a particular FUSRAP site will still have to be established on a site-by-site basis, in coordination with the local community, Federal and state regulators, and affected stakeholders. To ensure consistency throughout the program, USACE has established a national team of experts in radiological standards and risk assessment. This team will assist in developing overall program guidance as well as assist each District in the formulation of ARARs and the negotiation of remediation criteria. This team, in conjunction with each District, will review each site's technical data, regulatory requirements, and previous DOE commitments to formulate a proposed approach for discussion with regulators and stakeholders.

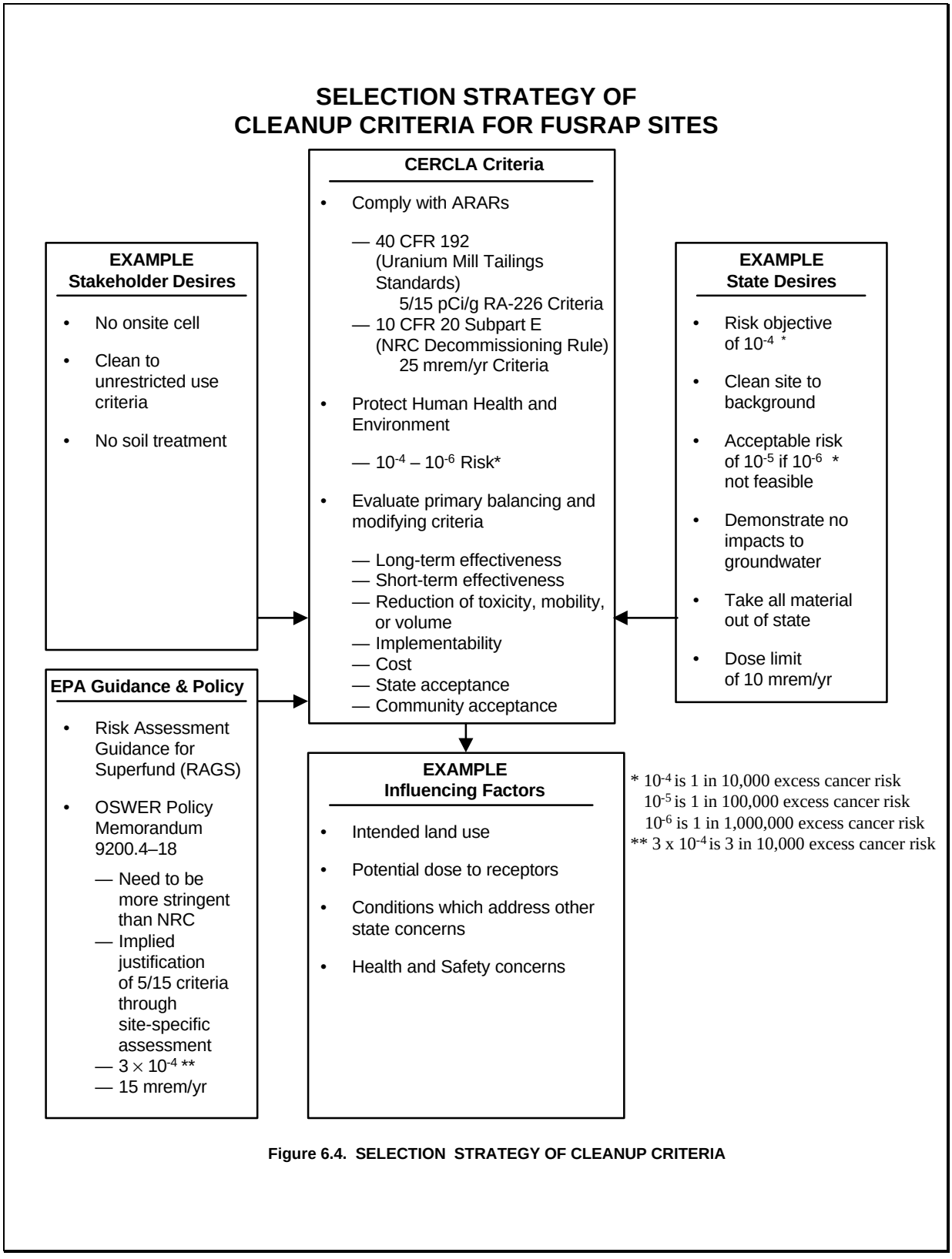

Figure 6.4. SELECTION STRATEGY OF CLEANUP CRITERIA

6.6 REAL ESTATE SUPPORT FOR USACE PROGRAM

USACE Districts with geographic responsibility for the various sites will provide Real Estate support for the FUSRAP project. USACE Divisions provide oversight and support. The real estate effort is carried out through the use of existing authorities and policies and, if available, through the use of existing staff. Additional resources, when necessary, will be acquired from other USACE locations and through existing contract capabilities.

DOE transferred all FUSRAP real property records from the DOE Oak Ridge Operations Office to USACE Transition Team as a part of the program transition.

The real estate efforts will be integrated into project management. Districts will evaluate existing DOE instruments to determine whether they provide sufficient real estate rights for project operation and construction. Additional real estate requirements, including description of property necessary to proceed with the projects and the estates required, will be identified early in the planning phase. Property owners will be identified and contacted. Agreement on terms will be negotiated with each landowner. All negotiations will be in conformance with the laws and regulations related to the acquisition of real property by the United States. Generally, the minimum rights necessary to proceed with project activity, temporary rights of entry and licenses, will be obtained. Interests in real property will only be acquired if necessary.

Bechtel had provided substantial real estate support to the FUSRAP program. USACE may continue to use capabilities and resources of Bechtel to finalize certain real estate activities which were in progress during the transition of the FUSRAP program. Transfer of project real estate data from Bechtel to USACE will be coordinated, as necessary, by the Districts. USACE is assessing the extent to which Bechtel's capabilities and resources should continue to be used to support these activities for the remainder of FY98.

6.7 USACE PUBLIC PARTICIPATION AND COMMUNITY INVOLVEMENT

USACE will actively promote a broad-based public participation and community involvement process for the FUSRAP program. Public participation and community involvement efforts will be modeled after the DERP-FUDS program and will comply with the requirements of the Superfund Amendments and Reauthorization Act (SARA) of 1986. USACE will promote a cooperative effort with other federal, state, local agencies, stakeholders, and the public for involvement in the FUSRAP program. Objectives are to:

- Provide for clear and open exchange of information regarding the site and related remediation activities;
- Ensure local concerns are addressed by soliciting input, comments and active involvement from the residents, tenants, concerned agencies, and elected officials and other stakeholders;
- Ensure that community concerns and values are integrated at the earliest possible time into planning and decision making processes associated with the remediation;
- Provide a centralized point of contact for the public to communicate their concerns and

obtain site-related information;

- Provide a visible, on-site professional presence of USACE and effectively integrate USACE remediation activities into that of the community.
- Engage the public and stakeholders in accordance with requirements of CERCLA process.

Upon expiration, the DOE state grants will be converted into cooperative agreements with a goal of promoting a successful partnership between USACE and the states to ensure an effective cleanup of FUSRAP sites.

Close coordination between federal, state, local agencies, stakeholders, and the public is a key to successful public participation and community involvement. The local USACE District will be responsible for coordination of public participation and community involvement. As the lead Federal Agency responsible for the cleanup of FUSRAP sites, USACE will comply with public participation and community involvement requirements as specified under CERCLA for the NPL sites, as well as for non-NPL sites regulated by the Federal Facility Agreements (FFAs). For non-NPL sites not regulated by FFA or under RCRA, it is USACE's intent to conduct public participation and community involvement activities in the spirit of CERCLA.

In addition, USACE plans to initiate community advisory groups, similar to the Restoration Advisory Boards (RABs) used for other defense and Superfund remediation, for FUSRAP sites where there is sufficient community interest and where these groups would be appropriate in efforts to foster two-way communication.

6.8 USACE SITE DESIGNATIONS, SITE CLOSURES, AND PRP INTERACTIONS

6.8.1 Designation of Sites

Corps focus is on completion of the 22 sites which DOE had not completed remediation when the Energy and Water Development Appropriations Act, 1998, was passed. The Corps will work with DOE and the Congress on issues related to the designation and funding of any additional sites

6.8.2 Regulatory and Site Closure Activities

USACE will respond at FUSRAP sites in accordance with CERCLA and the NCP. At sites listed on the NPL, the FFAs provide that EPA and DOE (to be amended to substitute USACE) will jointly select the final remedial action, and USACE will conduct the necessary components of the final remedy. When this work is completed, USACE will submit a report of completion to EPA. Upon EPA concurrence that the remedy is fully implemented, EPA will certify completion and move forward to delete the site from the NPL. For those sites not listed on the NPL, USACE will issue a ROD selecting the final remedial action after all necessary CERCLA processes are complete. USACE will then conduct all components of the final remedy. If any hazardous substances remain at the site, USACE will conduct any necessary five-year reviews to ensure that the remedial action is still protective of human health and the environment. If the ROD requires

any future use restrictions, USACE will establish them. When the remedy has been fully implemented, USACE will document the action and consider the site closed. Interested regulatory agencies, local government agencies or officials, or site owners or operators will be advised when this determination is made.

6.8.3 PRP Interactions

At a number of the sites CERCLA remediation liability is shared with other parties. These PRPs include parties who have moved historical radioactive materials from their original disposal location, causing a further release of the hazardous substances. In some cases, these actions have significantly increased the cost expended by the United States to remediate the site. In other cases, these PRPs conducted operations at a site before, during, or after the time of the activities that led to the determination of FUSRAP eligibility. These operations at various sites caused releases of radioactive or non-radioactive hazardous substances, or both.

At some sites, waste management activities by owner or operator PRPs occurred which have given rise to Federal or state RCRA requirements, including corrective actions. At sites where commercial nuclear materials operations took place under NRC licenses and radioactive materials were released, the licensee has remediation and closure responsibilities. Areas contaminated from any source other than the eligible FUSRAP activities may overlap with areas where radioactive materials eligible for FUSRAP response are located.

The presence of these RCRA or NRC regulated hazardous wastes or radioactive contamination may cause additional response costs by USACE. USACE will seek contribution or cost recovery from any viable PRPs that may be legally liable. USACE will work with the U.S. Department of Justice to negotiate settlements, or to litigate Federal claims for cost recovery or contribution, when the PRPs will not agree to pay response costs for which they are liable. These cost recovery efforts will be initiated once adequate information exists to establish the liability of the PRPs. This will encourage their active involvement in the conduct of response actions and ensure they accept responsibility for and fund the work related to their contamination.

6.9 CONTRACTING STRATEGIES

The USACE contracting strategies for FUSRAP differ significantly from the DOE strategy. DOE's contracting strategy revolved around a primary program management contractor (Bechtel), which controlled all of the execution subcontractors, and a studies contractor (SAIC). Bechtel managed the program based on input from DOE and the studies contractor. Bechtel developed scopes of work, schedules, and cost estimates, and awarded subcontracts for remediation work. DOE's contract with Bechtel was a Time and Materials (T&M) contract, which is the least-preferred contracting method listed in the Federal Acquisition Regulation because it does not provide a strong enough incentive for efficiency and cost control.

USACE contract strategy will concentrate on individual site-specific remediation contracts. USACE expects more efficient remedial actions through the use of performance-based specifications utilizing fixed-price and cost-type contracts, as appropriate.

The immediate USACE objective has been to provide continuity of execution and minimize disruptions to ongoing FUSRAP projects, and comply with congressional direction to honor the terms of existing DOE contracts. This has been accomplished by converting the DOE contracts transferred to USACE to indefinite delivery contracts and issuing task orders with definitive scopes under these contracts. As these existing DOE contracts expire during FY98, USACE will adopt a more decentralized approach to project execution. USACE will use multiple contractors and individual, site-specific contracts or task orders. USACE is currently developing appropriate long-term contract strategies to perform site characterization and design, as well as remedial action activities. The local geographical district will perform inherent government functions. Key components of the Corps contracting strategy include:

- Establish initial execution of the FY98 baseline by converting the DOE contracts transferred to the Corps to indefinite quantity contracts and issuing task orders with definitive scopes under these contracts;

- Use contract types that provide appropriate incentives for cost savings and schedule acceleration;

- Identify opportunities to re-scope responsibilities among present contractors in ways that accelerate assessment and remedial decisions and eliminate multiple handoffs between contractors;

- Administer contracts based on definitive contract scopes of work, along with management and control of activities to execute projects on schedule and within budget; and

- Acquire new Corps contract vehicles to execute FUSRAP projects as necessary, but use existing HTRW contract vehicles to the maximum extent possible.

The Corps currently uses approximately 15 contract types that were tailored specifically to support environmental remediation projects. Five of those contract types initially appear to be well suited for use in the FUSRAP Program. A brief synopsis of those types is provided below.

- Architect-Engineer (A-E) Services - Indefinite Delivery Contracts (IDC). An A-E IDC is a contract that provides for the issuance of individual task orders for investigation and design. These contracts are used to acquire engineering investigations, studies, decision documents, design, shop drawings, and, in some cases, construction and management support. Such work includes Preliminary Assessments (PAs), Site Investigations (SIs), compliance assessments, Remedial Investigations/Feasibility Studies (RI/FSs), Records of Decisions (RODs), Remedial Designs (RDs), sampling and analysis, and installation support on environmental projects.

- Naturally Occurring Radioactive Material (NORM) Contract. This contract may be used for the disposal of radioactive material that is properly manifested and transported to the designated disposal facility by any Agency or Department of the U.S. Government. The

contract is managed by Kansas City District, who awards and issues individual task orders based on fixed unit prices established in the basic contract.

- Pre-placed Remedial Action Contracts (PRAC). A PRAC is a remedial action contract that provides pre-placed capacity to perform projects for which there is insufficient time for the issuance of a site-specific contract. The main intent of this contract is to provide a mechanism to address time-sensitive projects that have already been characterized and scoped to a limited degree. This contract is typically used to accomplish final remediation of an HTRW site. Remedial action may be initiated with either complete or partial plans and specifications. The specifications for these contracts are performance based and comport with Office of Federal Procurement Policy Guide to Best Practices for Performance Based Service Contracting.

- Rapid Response/Immediate Response (RR/IR) Contracts. The RR/IR contracts are remedial action contracts used for time-sensitive interim removal actions for HTRW and ordnance and explosive waste (OEW). The USACE Omaha District manages these contracts. The projects are generally short-term removal or control of point source contamination. Immediate mobilization is used if the need is urgent, and begins within 72 hours of receipt of funds. Rapid mobilization occurs with less than urgent requirements and typically begins within 3-60 days of receipt of funds. The specifications for these contracts are performance based and comport with Office of Federal Procurement Policy Guide to Best Practices for Performance Based Service Contracting.

- Total Environmental Restoration Contracts (TERC). A TERC is a contract that provides a broad range of environmental services with contract capacities, capabilities, and duration suited for large, complex, fast track projects. TERCs provide for a single contractor capable of providing "cradle-to-grave" capability at a site and responsible for all phases of a project. TERCs are well suited for projects that are complex in nature and require effective sequencing of work, and streamlined coordination between subcontractors and phases of work. TERCs are intended to reduce costly changes and the uncertainty of environmental liability from having multiple contractors on two or more co-located sites. The specification for these contracts are performance based and comport with Office of Federal Procurement Policy Guide to Best Practices for Performance Based Service Contracting.

6.10 USACE EXPECTED COST AND SCHEDULE EFFICIENCIES

USACE assessed the FUSRAP program during the transition period beginning in mid-October 1997. The focus of the assessment was to identify key areas where improvements to the cost and schedule could be enacted. USACE evaluated existing DOE/FUSRAP method of operations, program management, baselines for cost and schedule, contract management, and regulatory/technical requirements to determine areas where efficiencies could be achieved. A comparison was made of operating procedures between the DOE/FUSRAP and USACE methods, used in execution of the environmental restoration programs.

USACE believes that a number of the tasks performed by Bechtel under its contract with DOE

may be inherent governmental functions. Consequently, like other similar HTRW projects, USACE will perform these tasks with in-house personnel. If Bechtel's work includes "commercial activities" as defined by OMB Circular No. A-76, USACE will determine whether an A-76 cost study is required, and, if required, perform the study, before arranging to permanently perform any of this particular work in-house.

USACE procedures are expected to produce improvements due to our organizational strengths in the areas of engineering, project management, construction management, and acquisition management. Examples of improvements include:

- USACE's nationwide resources of engineers and scientists that can be brought to bear upon the FUSRAP cleanup process.

- USACE's cradle-to-grave Project Management procedures applied, eliminating duplicative efforts of contractors managing contractors.

- Conduct onsite construction supervision and administration of field activities at every site.

- Applying our innovative contracting tool chest to expedite cleanup for a fair and reasonable price.

6.11 VALUE ENGINEERING/VALUE MANAGEMENT

USACE will actively perform Value Engineering (VE)/Value Management (VM) Studies on all FUSRAP projects with cost estimates of $2,000,000 or greater in compliance with February 1996 Amendment to the Office of Federal Procurement Policy Act, Office of Management and Budget Circular A-131, and Corps Policy. Proper use of VE/VM will ensure:

a. FUSRAP is performed in the most cost-effective manner possible;

b. Lessons learned at one site are transferred to others;

c. Outdated remedies are challenged, and innovations are introduced and thoroughly reviewed for implementation.

7. CONCLUSIONS

The DOE proposed plan for completing FUSRAP by the year 2002, at a remaining FY98-02 cost of $910 million, is questionable. The 2002 proposal does not adequately address the following at many of the sites:

- Cleanup of groundwater contamination;
- Necessary characterization to support final decision-making under CERCLA; final disposal of non-radioactive materials; and proper waste classification (e.g., mixed waste);
- The time and cost necessary to complete PRP actions, to determine the appropriate Federal cost contribution and to accomplish the necessary coordination with regulators;
- Remediation and closure of sites where there are ongoing commercial operations (e.g., SLDS, Madison, IL, etc.).
- The cost and time necessary to complete remediation at NFSS; and
- Significant under estimation of the scope of work at Luckey, OH.

Based on its preliminary assessment, USACE has developed a range of more realistic scenarios for completing FUSRAP. The most efficient schedule for completion, the unconstrained baseline, assumes no annual funding limitations. Under this scenario, the program would be complete by the year 2006 at a remaining cost of $1.56 billion (see Figures 6.1 and 6.2). With constrained budgets, the time and schedule change significantly; at an annual funding level of $140 million, the program would cost $1.88 billion and not be complete until 2011. This option is somewhat less efficient than the optimum $1.56 billion/2006 combination.

The selection of the appropriate remediation objectives and criteria is the key variable that affects the volume of contaminated material to be remediated and, therefore, the cost and schedule, at each site. DOE generally chose conservative criteria reflecting, in part, the influences of local communities and state regulators. These choices may not represent the base use of taxpayer resources and, because of the higher costs and longer schedules, may actually delay remediation at some of the sites. USACE believes that the adoption of criteria, which protect human health and the environment, but do so with appropriate consideration for cost, regulatory and community acceptance, and land reuse requirements, would be the more appropriate remediation strategy. The options outlined above represent an estimate of the cost and time necessary to complete FUSRAP using this approach. If USACE uses the more conservative approach as implemented by DOE in recent years, the cost and time to complete would increase significantly.

USACE intends to make major changes in the program management and contracting approach. The current contracts with SAIC and Bechtel expire in April 1998 and June 1998, respectively. USACE personnel will restructure the program and project management functions, and assure

effective and efficient cleanup execution through the use of appropriate contract vehicles and by ensuring that Federal employees perform any inherently governmental functions.

The initial emphasis of USACE is on timely and cost-effective execution of the FY98 work program as it had been developed by DOE and transferred to USACE in October 1997. After this initial effort USACE will:

- Develop a detailed acquisition strategy for each site, analyzing the tasks in the DOE FY98 work program to determine how they can best be performed.

- After coordination of the project scopes with local communities, regulators, and affected interests, conduct a detailed cost and schedule review to identify efficiencies.

- Apply the FY98 appropriations that DOE had not programmed for execution to accomplish additional remediation work this fiscal year.

APPENDIX A

FY 98 ENERGY AND WATER DEVELOPMENT APPROPRIATIONS ACT AND CONFERENCE REPORT LANGUAGE

BILL LANGUAGE

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (including transfer of funds)

For expenses necessary to administer and execute the Formerly Utilized Sites Remedial Action Program to clean up contaminated sites throughout the Untied States where work was performed as part of the Nation's early atomic energy program, $140,000,000, to remain available until expended: Provided, That the unexpended balances of prior appropriations provided for these activities in this Act or any previous Energy and Water Development Appropriations Act may be transferred to and merged with this appropriation account, and thereafter, may be accounted for as one fund for the same time period as originally enacted.

CONFERENCE REPORT LANGUAGE ON FUSRAP

The conference agreement appropriates $140,000,000 for the Formerly Utilized Sites Remedial Action Program (FUSRAP) instead of $110,000,000 as proposed by the House and $162,000,000 as proposed by the Senate. The conference agreement also transfers the FUSRAP program from the Department of Energy to the U.S. Army Corps of Engineers for program execution. The Corps currently manages and executes a similar program, the Formerly Used Defense Sites program, for the Department of Defense, and the conferees believe there are significant cost and schedule efficiencies to be gained by having the Corps manage FUSRAP as well.

The conferees are aware of the concerns expressed that a transition from one Federal agency to another may create unnecessary delays in the program. The conferees expect the Department of Energy and the Corps to make every effort to ensure that this transition goes smoothly, that execution of the program is maintained in accordance with current schedules, and that overall execution performance is improved. The Department of Energy recently announced that it will complete the existing management and operating contract for the FUSRAP program with a contract change becoming effective in the spring of 1998. The conferees expect the program to continue within the existing contract framework during that period, and will expect minimal disruption in operations during that time as the terms of current contracts are honored.

The conferees direct the Corps of Engineers to review the baseline cost, scope, schedule, and technical assumptions for each of the cleanup sites, and determine what actions can be taken to reduce costs and accelerate cleanup activities. The Corps should determine if it is possible and/or reasonable to meet the proposed 2002 completion date and report to the Committees on Appropriations within 90 days on what steps must be taken to meet this date.

The conferees expect the Chief of Engineers to select an organization and process within the Corps which can execute this high priority program most effectively and efficiently. To avoid potential jurisdictional problems, however, overall program management, schedule and resource priority setting, and principal point of contact responsibilities for FUSRAP are to be handled as part of, and integrally with, the overall Civil Works program of the Corps.

APPENDIX B

STATUS BREAKDOWN OF OPERABLE UNITS

FUSRAP Operable Units Status as of 30 September 1997

Site	Operable Unit	Preliminary Assessment/Site Investigation	Remedial Investigation/ Feasibility Study	Interim Actions	Record of Decision	Remedial Design/ Remedial Action	Project Closeout	Operations & Maintenance
NFSS	Buildings	X	X	-	-	-	-	-
	Residues	X	X	-	-	-	-	O
Colonie	Soils	X	X	O	O	O	-	O
	VPs	X	X	O	O	O	-	O
Ashland 1	Soils	X	X	N/A	-	-	-	-
Ashland 2	Soils	X	X	N/A	-	-	-	-
Linde Air Products	Soils	X	X	N/A	-	-	-	-
	Buildings	X	X	O	-	-	-	-
	VPs	X	X	N/A	-	-	-	-
Seaway	Soils	X	X	N/A	-	-	-	-
Bliss & Laughlin	Building	X	X	-	-	-	-	-
Maywood	MISS/Stephan Soils	X	X	-	-	-	-	-
	MISS/Stephan Bldgs	X	X	-	-	-	-	-
	Comm/Gov Soils	X	X	-	-	-	-	-
	Residential Soils	X	X	O	-	-	-	-
	Groundwater	X	-	-	-	-	-	-
Wayne	Pile	X	X	X	-	X	-	-
	Subsurface	X	O	O	-	-	-	-
Middlesex	MML Pile	X	X	O	-	-	-	-
	VP Pile	X	X	-	-	-	-	-
	Subsurface & Groundwater	X	O	-	-	-	-	-
Dupont & Company	Building 845 and Ditch	X	-	-	-	-	-	-
	Balance of site	X	-	-	-	-	-	-
SLDS	Building CEDON/DEMO	X	X	X	-	O	O	-

	Subsurface	X	O	O	-	-	-	-
	VPs	X	O	O	-	-	-	-
SLAPS VPs	Ballfields	X	O	N/A	-	-	-	-
	Haul Roads (VPs)	X	O	O	-	-	-	-
	Coldwater Creek – South	X	O	-	-	-	-	-
	Coldwater Creek – North	O	-	-	-	-	-	-
	SLAPS ditches	X	O	O	-	-	-	-
	Airport	X	O	-	-	-	-	-
Latty Ave.	HISS Pile	X	O	-	-	-	-	-
	HISS/Futura subsurface	X	O	X	-	-	-	-
	Latty VPs	X	O	X	-	-	-	-
SLAPS	Subsurface	X	X	O	-	-	-	-
Ventron	Site	X	X	X	X	X	O	N/A
W.R. Grace	Building 23	X	-	-	-	-	-	-
	Landfill and balance of site	X	-	-	-	-	-	-
Madison	Site	X	-	-	-	-	-	-
Luckey	Site	O	-	-	-	-	-	-
Painesville	Site	X	X	-	-	-	-	-
CE	Buildings	X	O	-	-	-	-	N/A
	Site Brook	X	O	-	-	-	-	N/A
	Drum B/W PA/SD	X	O	-	-	-	-	N/A
	Balance of site	X	O	-	-	-	-	N/A
Shpack	Site	X	-	X	-	-	-	-
New Brunswick	Site	X	X	N/A	X	X	O	N/A

Legend:
X = Completed
O = In Process
- = Not Initiated

Key	Percentage Complete			
	Completed	99%	48%	
	In-Progress	4%	33%	
	Not initiated	0%	9%	

APPENDIX C

CURRENT FY 98 WORK PROGRAM

FUSRAP – FY98 FUNDING FORECAST PERIOD 1 Oct 97 thru 30 Sep 98	
SITE NAME	**FUNDING FORECAST ($X1000)**
BUFFALO DISTRICT	
Ashland 1*, Tonawanda, NY	206
Luckey Site, Luckey, OH	5,961
Painesville Site, Painesville, OH	7,130
Bakers Brothers, Toledo, OH	2
Seaway Industrial Park, Tonawanda, NY	71
Bliss & Laughlin Steel, Buffalo, NY	0
Linde Air Product, Tonawanda, NY	11,303
Ashland 2, Tonawanda, NY (see Ashland 1)	9,526
Niagara Falls Storage Site, Lewiston, NY	824
Sub-Total Buffalo Dist.	35,023
NEW YORK DISTRICT	
Middlesex Sampling Plant, Middlesex, NJ	7,878
Wayne Site, Maywood, NJ	11,448
Maywood Site, Maywood, NJ	17,899
Colonie Site, Colonie, NY	15,625
New Brunswick Site, New Brunswick, NJ	135
Sub-Total New York Dist.	52,985
ST. LOUIS DISTRICT	
Madison Site, Madison, IL	0
St. Louis Downtown Site, St. Louis, MO	5,983
St. Louis Airport Site VP's, St. Louis, MO	3,986
Latty Avenue Properties, Hazlewood, MO	5,335
St. Louis Airport Site, St. Louis, MO	11,968
Sub-Total St. Louis Dist.	27,272
NEW ENGLAND DISTRICT	
Shpack Landfill, Norton, MA	2
Ventron, Beverly, MA (1)	55
CE Site, Windsor, CT	2,874
Sub-Total New England Dist.	2,931
BALTIMORE DISTRICT	
W.R. Grace & Co., Curtis Bay, MD (2)	5
PHILADELPHIA DISTRICT	
DuPont & Co, Deepwater, NJ	178
GENERAL MOTORS, Adrian, MI	10
FUSRAP Oak Ridge Transition Team	700
FUSRAP Assessment Team	400
CENWD Technical Support (including HTRW CX)	600
Grants to States (MO, NJ, NY, OH)	900
DOE NET UNPAID PRIOR YEAR OBLIGATIONS	2,210
Management Reserves (3)	16,786
FY 98 Total	140,000
Notes:	
Baseline FY98 contract budget is based on $122.5M	
USACE In-House cost is included with the budget forecast.	
(1) Represents contract amount and not USACE in-house expenditures for delisting of the site.	
(2) Represents contract amount and not USACE in-house expenditures for Potentially Responsible Parties (PRP).	
(3) Includes contingency for contractors reserve for unplanned work requirements but will be primarily dedicated to additional FY98 remediation work as the opportunities are identified.	

APPENDIX D

USACE ASSESSMENT REPORTS OF FUSRAP SITES

APPENDIX D - ORGANIZATION OF SITE REPORTS

Maryland, W. R. Grace Site, Curtis Bay FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The W.R. Grace/Grace Davison Chemical Division, Curtis Bay Facility, is located on an industrialized peninsula in south Baltimore, and consists of 260-acres owned by Grace.

History. Chemical processing has been performed at the Grace site since 1909. During World War II, the facility manufactured explosives. In 1955, the predecessor of Grace entered into a contract with the Atomic Energy Commission (AEC) to extract thorium and rare earth elements from monazite sands at the Curtis Bay plant. From 1912 until 1979, all waste material generated at the plant, including the waste described above, was disposed of in an area to the east of the plant proper.

Contamination. The primary radioactive contaminant of concern is thorium-232.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

DOE's involvement at this site was early in the site characterization phase, so no clearly defined cleanup strategy had been developed. The assumed strategy for this site was removal of existing packaged contaminated material from Building 23 and additional decontamination of the building. There is limited information on the potential remediation of the Radioactive Waste Disposal Area (RWDA). Cleanup under this DOE proposal was to be completed in FY2002 at an estimated cost of $12M, including an assumed Grace contribution.

2.2 Site Status

This site was designated into FUSRAP in 1980. It includes one building, and based on limited documentation available to USACE, it may also include other areas such as an area identified as the Radioactive Waste Disposal Area (RWDA). Radiological and chemical contamination are both present. A sitewide aerial survey and a Building 23 radiological survey have been conducted.

2.3. USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that cold increase costs compared to prior DOE estimates:

- In information that was available the overall designation of the site into the FUSRAP Program has not been clearly documented.

- Existing documentation indicates an inconsistency as to the actual site areas that have been designated into the FUSRAP Program. These inconsistencies include the RWDA, other onsite areas, and vicinity properties.

- The extent of contamination has not been fully characterized, including the potential to encounter any mixed waste due to other site operations.

- There is a lack of detailed activity based project cost estimates and schedule leading to a completed project closeout.

- This site would probably not have been completed by 2002.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 Expectations from Corps

The Grace site in Maryland is not listed on the National Priorities List, and USACE is now the lead federal agency for remediation in accordance with CERCLA. The State of Maryland Department of the Environment (MDE) has not yet been involved in technical consultation on this site as it was in the preliminary stages of investigation. The involvement of the State will be encouraged by USACE. Making site information available for public review, sponsoring public information meetings, and seeking public comment will provide community participation in the CERCLA remedy selection process. USACE will actively seek community participation by encouraging all interested persons to review information and comment on the response actions to be conducted at this site. USACE has discovered no special requests or concerns to DOE or commitments from DOE regarding the response actions at this site, except as noted below in the legal discussion.

Legal issues. The CERCLA process is in the beginning of the characterization stage at this site, and response actions will be conducted consistent with the NCP. Grace has owned and operated at the site for nearly 100 years and U.S. involvement was limited to contracts with Grace. Grace has conducted commercial operations which may have caused releases of hazardous substances, and may have responsibilities under State RCRA regulations at various areas of the site. The RWDA may have been used for disposal of radioactive waste materials as well as other operational wastes. USACE will seek the necessary information to ensure that any mixed waste at the site is properly characterized and disposed at an authorized facility. USACE will investigate site activities involving both work for the government and commercial work to determine if some of the radioactive waste may also be a result of commercial operations.

3.2 Constraints

Building 23 is an active chemical processing facility, operating 24 hours a day. Some of the building's contaminated slabs are directly beneath large, heavy machinery currently in use, so operations may have to be interrupted when slabs are removed, impacting schedules and costs.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Interim removal and remedial actions may be performed after further review of site information. An EECA may be developed which provides for transportation and disposal of Building 23 waste rubble, located in the sealand containers. A remedial action will be performed on the remainder of Building 23 contaminated areas. Tasks for this action include: source area removal within of the building, recycling scrap metal where possible, and transporting and disposing of wastes. Possible environmental documentation includes proposed plans, site-specific work plans, records of decisions, and final closure documents. Confirmation testing will be performed to ensure standards are maintained. Response action work at other sites, including the RWDA is contingent upon identification of AEC related waste and FUSRAP designation descriptions, and if there is an agreement with Grace.

4.2 Site Schedule Milestones

Tasks	Start date	End Date
• Engineering Evaluation/ Cost Analysis	Summer 1998	Fall 1998
• Interim Removal Action (Waste Rubble)	Fall 1998	Winter 1999
• Interim Removal Action (Bldg. 23)	Winter 2000	Summer 2000
• Interim Removal Action (RWDA) (if appropriate)	Fall 1999	Fall 2000
• Record of Decision	Fall 1999	Winter 2000
• Remedial Action Implementation	Spring 2000	Summer 2002
• Project Close-out	Summer 2002	Fall 2002

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cost - FY98 to Completion

Cases	Completion Date	(In Millions)
DOE ACP	2002	12.1
DOE TYP	2003	12.8
USACE Baseline	2002	39.6
USACE Conservative	2002	53.3

Note: DOE cost to complete assumed cost sharing on landfill closure without clear justification, the USACE cost estimates do not have cost sharing included. USACE balanced cost assumes segregation of RWDA waste to reduce costs, while the conservative cost assumes segregation is not possible. Neither USACE cost estimates includes any potential additional areas that have not been identified and may require remediation.

Maryland, W. R. Grace Site, Curtis Bay FUSRAP Site

1. DESCRIPTION OF SITE

Location: The Ashland 1 property is a 10.8-acre industrialized area in Tonawanda , New York, approximately 3 miles northwest of Buffalo, New York. The Niagara River is less than ½ mile to the north of the property. Land near Ashland 1 is used for industrial, commercial, public, and residential purposes. This site assessment includes what is known as the Seaway Area D, which is grouped with Ashland 1 for Remediation.

History: The former Linde Air Products Division of Union Carbide processed uranium ores at its facility in Tonawanda under contract to the Manhattan Engineer District (MED) from 1942 to 1946. From 1944 to 1946, uranium-processing wastes were transported from Linde to Ashland 1. These materials consisted of about 8,000 tons of low-grade uranium ore tailings. The site was decontaminated and decommissioned to the standards in effect at the time. In 1960, the Ashland property was acquired by Ashland Petroleum for use in the company's oil refinery activities.

Between 1974 and 1982, Ashland Petroleum excavated and transported about 6,000 cubic yards of contaminated soil from Ashland 1 to a disposal area on property which is now known as Ashland 2. Some of the residue that was moved from Ashland 1 also contaminated the Seaway property.

Contamination: The primary radioactive materials at the site are uranium-238, radium-226, thorium-230, and the decay products associated with these contaminants.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan for the Site

To identify the optimal remedial alternative, extensive information was gathered and reported in the following documents:

- Remedial Investigation Report for the Tonawanda Sites, DOE, February 1993;
- Baseline Risk Assessment for the Tonawanda Site, DOE, August 1993; and
- Feasibility Study for the Tonawanda Site, DOE, November 1993.
- Radionuclide clean up guideline derivation for Ashland 1, Ashland 2, and Seaway, DOE 1997.

A DOE proposed plan for remediation, issued in 1993, included excavation and disposal of the contaminated material in an onsite containment cell at Ashland 1. Significant public opposition to onsite disposal led DOE to remove this plan from consideration.

After further public coordination, DOE prepared a revised proposed plan, which includes offsite disposal of waste materials. The proposed plan would allow unrestricted release of the property under an industrial/commercial future use scenario. The proposed plan also meets DOE and NYSDEC's unrestricted release criteria and is consistent with the Town of Tonawanda Waterfront Master Plan. Following USACE review and approval, the proposed plan was released

for public comment in November 1997.

2.2 Site Status

This site was designated into FUSRAP in 1984. According to DOE, preliminary surveys and characterizations indicate both radiological and chemical contamination is present at the site. A remedial investigation, feasibility studies, baseline risk assessment, a radionuclide guideline for the site, and a proposed plan has been developed and disseminated to concerned parties.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Stakeholder reaction to the preferred alternative will not be known until the public comment period on the Proposed Plan closes.

- The potential to use lower-cost alternate disposal for these wastes has not been fully explored.

- Wastes for off site disposal have not been characterized for the presence of hazardous wastes.

- Right of way necessary to construct and operate a railroad spur and loading facility have been identified but not acquired.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

Since the site is not on the NPL and is being remediated in accordance with CERCLA, USACE is the lead federal agency for ensuring compliance with the NCP and selection of a remedial action, which is protective of the public and the environment. The State of New York has been involved in technical consultation with DOE and their continued involvement will be sought by USACE. Community participation in the CERCLA remedy selection process has been provided by DOE primarily through contacts with a local community group known as the Coalition Against Nuclear Waste in Tonawanda (CANiT), as well as by sponsoring public information meetings and seeking public comment. DOE furnished funds for CANiT to retain a noted scientific consultant to furnish technical assistance with their reviews. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site, including the members of CANiT and other groups.

Over the years, DOE has received requests for a number of promises regarding the final remedial action to be furnished at this site, from congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at Tonawanda. USACE is compiling and evaluating these requests and commitments to determine the impacts they may have on the project. In general these requests concern not creating a waste storage area on these sites, consistency with the local planned uses of the property, and seeking community support for the final remedy.

USACE recognizes that not every person will ultimately approve of the remedial action, but it will consider all the comments submitted regarding the proposed plan and will select a remedy, which will protect the public and the environment. Some requests, such as one to send waste for offsite disposal only outside the State of New York may not be fair to other states, so USACE will review them to determine an approach which is in the overall best interests of achieving the goals of CERCLA.

Legal Issues. The Ashland 1 site is close to the issuance of a final Record of Decision for a remedial action. USACE will ensure that the decision is in compliance with CERCLA. There may be contamination at this site, which is the result of other operations and may require consideration for appropriate disposal. USACE will take appropriate action to properly dispose of the materials, which are sent offsite, and if appropriate, may seek contribution from parties whose actions have caused the incurrence of costs.

3.2 Constraints

The proposed remedial design involves constructing and using a single railroad spur line and loading facility to transport material removed from Ashland 1, Ashland 2, and Seaway Area D. This plan involves obtaining agreements from several private owners for authority to access their properties, including an electric power utility and a railroad company. Inability to reach an agreement with any property or utility owner has the potential to impact schedules and costs.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

The remedial action will be performed as described in the ROD. The following remedial action documentation may be prepared: site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and may include historical record search and groundwater characterization. Tasks for the remedial action will include exhumation of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially generated contamination. If it is appropriate Potentially Responsible Parties will be apprised of their liabilities.

4.2 Site Schedule and Milestone

Task	Start date	End Date
• Remedial Action Planning	Ongoing	Spring 1998
• Record of Decision	Spring 1998	Summer 1998
• Remedial Action Implementation	Winter 1999	Fall 1999
• Project Close-out	Fall 1999	Fall 2000

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2000	25.7
DOE TYP	1999	13.5
USACE Baseline	2000	28.7
USACE Conservative	2000	28.7

Note: USACE cost estimates are based on the same approach as DOE ACP but includes additional funds for potential mixed waste. The estimates also include cost for complete project close out following the CERCLA process.

New York, Ashland 2 FUSRAP Site

1. DESCRIPTION OF SITE

Location: The Ashland 2 Site is 115 acres in Tonawanda, NY, approximately 3 miles northwest of Buffalo, New York.

History: The former Linde Air Products Division of Union Carbide processed uranium ores at its facility in Tonawanda under contract to the Manhattan Engineer District (MED) from 1942 to 1946. Uranium processing wastes were transported from Linde to a 10-acre area, known now as Ashland 1. In 1960 the property was acquired by Ashland Petroleum for use in the company's oil refinery activities. Between 1974 and 1982, Ashland Petroleum excavated and transported contaminated soil from Ashland 1 to a disposal area on what is now known as Ashland 2. The site is not owned by the United States.

Contamination: The primary radioactive materials at the site are uranium-238, radium-226, thorium-230, and the decay products associated with these contaminants. Some heavy metals are reported for this site.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan for the Site

To identify the optimal remedial alternative, extensive site information was gathered and reported in the following documents:

- Remedial Investigation Report for the Tonawanda Sites, DOE, February 1993;
- Baseline Risk Assessment for the Tonawanda Site, DOE, August 1993; and
- Feasibility Study for the Tonawanda Site, DOE, November 1993.
- Radionuclide clean up guideline derivation for Ashland 1, Ashland 2, and Seaway, DOE Sept 97.

DOE developed a proposed plan for remediation from the first three referenced documents and input from the community. The proposed plan, issued in 1993, included excavation and disposal of the contaminated material in an onsite containment cell at Ashland 1. Significant public opposition to onsite disposal led DOE to remove this plan from consideration.

After further public coordination and development of the fourth above referenced document, DOE released a revised proposed plan, which includes offsite disposal of waste materials, to the public in October 1997. The proposed plan would allow unrestricted release of the property under an industrial/commercial future use scenario. The proposed plan also meets DOE and NYSDEC's unrestricted release criteria and is consistent with the Town of Tonawanda Waterfront Plan. Following USACE review and approval, the final proposed plan was released for public comment in November 1997.

2.2 Site Status

This site was designated into FUSRAP in 1984. According to DOE, preliminary radiological surveys and characterizations indicate both radiological and chemical contaminations are present. A remedial investigation, feasibility study, baseline risk assessment, and a proposed plan have been developed and disseminated to concerned parties.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Stakeholder reaction to the preferred alternative will not be known until the public comment period on the Proposed Plan closes.
- The potential to use lower-cost alternate disposal for these wastes has not been fully explored.
- Wastes for off site disposal have not been characterized for the presence of hazardous wastes.
- Right of way necessary to construct and operate a railroad spur and loading facility have been identified but not acquired.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

Since the site is not on the National Priorities List and is being remediated in accordance with CERCLA, USACE is the lead federal agency for ensuring compliance with the NCP and selection of a remedial action that is protective of human health and welfare and the environment. The State of New York has been involved in technical consultation with DOE and their continued involvement will be sought by USACE. Community participation in the CERCLA remedy selection process has been provided by DOE primarily through contacts with a local community group known as the Coalition Against Nuclear Waste in Tonawanda (CANiT), as well as by sponsoring public information meetings and seeking public comment. DOE furnished funds for CANiT to retain a noted scientific consultant to furnish technical assistance for their reviews. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site, including the members of CANiT and other groups.

Over the years, DOE has received requests for a number of promises regarding the final remedial action to be furnished at this site, from congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at Tonawanda. USACE is compiling

and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project. In general these requests concern not creating a storage area on these sites, consistency with the local planned uses of the property, and seeking community support for the final remedy.

USACE recognizes that not every person will ultimately approve of the remedial action, but it will consider all the comments submitted regarding the proposed plan and will select a remedy, which will protect the public and the environment. Some requests, such as one to send waste for offsite disposal only outside of the State of New York may not be fair to other states, USACE will review them to determine an approach which is in the overall best interests of achieving the goals of CERCLA.

Legal Issues. The Ashland 2 site is close to the issuance of a final Record of Decision for a remedial action. USACE will ensure that the decision is in compliance with CERCLA. There appears to be contamination at this site which is the result of other operations, as this area was used for disposal over a period of years and other contamination may impact the appropriate disposal facility. USACE will take appropriate action to properly dispose of the materials that are sent offsite, and if appropriate, may seek contribution from parties whose actions have caused the incurrence of costs.

3.2 Constraints

The proposed remedial design involves constructing and using a single railroad spur line and loading facility to transport material removed from Ashland 1, Ashland 2, and Seaway Area D. This plan involves obtaining agreements from several private owners for authority to access their properties, including an electric power utility and a railroad company. Inability to reach an agreement with any property or utility owner has the potential to impact schedules and costs.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, a remedial action will be performed. The following remedial action documentation may be prepared: site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and may include historical records search and calculations to show that groundwater will not be impacted in the future. Tasks for the remedial action will include exhumation of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially generated contamination.

4.2 Site Schedule and Milestone

Task	Start Date	Completion Date
• Remedial Action Planning	Ongoing	Spring 1998
• Record of Decision	Spring 1998	Summer 1998
• Implement Remedial Action	Summer1998	Fall 1998
• Project Close-out	Fall 1998	Fall 1999

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

		Cost - FY98 to Completion
Cases	Completion Date	(In Millions)
DOE ACP	1999	13.0
DOE TYP	1999	8.0
USACE Baseline	1999	14.4
USACE Conservative	1999	14.4

Note: USACE cost estimates are based on the same approach as DOE ACP but includes additional funds for handling potential mixed waste and for complete project close out following the CERCLA process.

New York, Bliss and Laughlin Steel Site, Buffalo FUSRAP Site

1. PROJECT/SITE DESCRIPTION

Location: The former Bliss and Laughlin Steel Company is located in Buffalo, New York. The site consists of a single 129,000 square foot building containing steel processing equipment. The facility is still used for the production of steel products.

History: Between September and October 1952, Bliss and Laughlin Steel Company machined and straightened uranium rods under contract to National Lead in Ohio. The finished rods were shipped offsite to the Fernald, Ohio, Feed Materials Production Center. In the 1950s, when uranium-machining operations were underway, National Lead conducted a radiation survey of the property and found radioactivity in the processing area and on the machines. Contaminated equipment has since been removed.

In March 1992, DOE measured radiation levels on the floor of the facility. Levels of radioactivity were found to be low and of no threat to workers or the general public, particularly because the material is fixed to the floor and cannot be spread to other areas. Further radiological characterization was performed, and a few overhead areas of contamination were found, primarily in structural joints where access is difficult. Hazard assessment has yet to be performed.

Contamination: The primary contaminant of concern is uranium-238, which is located in the special finishing area.

2. OVERVIEW AND STATUS OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Strategy for the Site

DOE's remediation approach assumes decontamination of the building to current surface criteria. The impacted volume, which will be disposed offsite, is approximately 20 cubic yards. It is expected that this facility will remain an industrial/commercial site. The contamination is believed to be fully contained within the building and thus no impacts to groundwater or soil have been assumed.

2.2 Site Status

This site was designated into FUSRAP in 1992. According to DOE, preliminary radiological surveys and characterizations indicated that radiological contamination is present within the building. No chemical characterization has been conducted to date.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Current owner had not provided access to the property for remediation.
- Existing data indicates contamination is limited; risk analysis has not yet been performed to determine if unacceptable risks exist.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

This site is not on the National Priorities List. USACE is now the lead federal agency for response to the suspected radioactive contamination under CERCLA. There are no known regulatory or community special concerns regarding this site; however, during the course of work USACE will consult with the New York state environmental and health agencies, and will make information available to the community and seek public comment on any proposed remedy.

3.2 Constraints

a. Contamination within ceiling structural framework may be difficult to access.

b. Scheduling conflicts with the current owner during plant operations may limit access to this property for remediation.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

A hazard assessment and/or a remedial action will be performed. The hazard assessment will determine radiological doses from the building contamination; a risk analysis will be developed to quantify hazards to human health. If unacceptable risk to human health exists, and when authority to access the site is provided, a remedial action will commence. Tasks for this action include source area removal within the building, recycling scrap metal where possible, and transporting and disposing of wastes. Possible environmental documentation includes proposed plans, site-specific work plans, records of decisions, and final closure documents. Confirmation testing will be performed to ensure standards are maintained.

4.2 Site Schedule

Listed below are projected duration intervals for the cited tasks. The execution of this work is contingent upon authority to access the site.

Tasks	Duration
• Site Investigation and Characterization	12 months
• Record of Decision	6 months
• Project Close-out	4 months

4.3 Site Cost Data

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

		Cost - FY98 to Completion
Cases	Completion Date	(In Millions)
DOE ACP	2002	0.8
DOE TYP	2002	0.8
USACE Baseline	1999	0.3
USACE Conservative	1999	0.3

New York, Linde FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location: The former Linde Site is comprised of a privately owned active industrial area of 105 acres located in the Town of Tonawanda, New York. A vicinity property to the Linde Site is the Town of Tonawanda Landfill, which covers approximately 55 acres.

History: From 1942 to 1946, Linde Air Products, Inc. was contracted by the Manhattan Engineer District (MED) to separate uranium from ore. Five buildings were involved in these activities. A survey of the Town of Tonawanda Landfill was performed at the request of the DOE to determine if MED-related material had been deposited in the landfill. The survey identified material similar to the product material at the Linde plant. Linde Air Products has operated commercially at the site for several decades. The Town of Tonawanda landfill was operated from the mid-1930s through October 1989. Uranium extraction activities were discontinued in 1946 and the facilities were decontaminated and decommissioned from 1949 through 1952 to standards in effect at that time. Follow-up surveys indicated that further cleanup of buildings should be considered.

Contamination: The primary radiological contaminants are uranium-238, radium-226, and thorium-230.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

Building 37 was decontaminated in 1980 and demolished after the 1981 radiological survey. More recently, Building 38 has been decontaminated and demolished, and radioactively contaminated debris was disposed of offsite. Building 31 has been decontaminated and turned over to the owner. Building 14 is currently undergoing decontamination procedures, with the work scheduled to be completed in FY98. Radioactively contaminated soil and debris stored in Building 30 is currently being shipped to a licensed commercial facility outside of New York State. After the soil and debris are removed from Building 30, the building will be demolished. The building debris and remaining contaminated soil will be removed from the site.

- Remedial Investigation Report for the Tonawanda Sites, DOE, February 1993;
- Baseline Risk Assessment for the Tonawanda Site, DOE, August 1993; and
- Feasibility Study for the Tonawanda Site, DOE, November 1993.

The DOE assumption was that radioactively contaminated groundwater is not an issue at the Linde site, although there were injection wells used for a time.

In January 1997, DOE prepared a preliminary draft report recommending that isolated areas of the landfill containing elevated radioactivity assumed to be related to MED activities be covered with clean soil. The report states that leaving this material in place is consistent with current practices at this landfill

2.2 Site Status

This site was designated into FUSRAP in 1980. According to DOE, radiological surveys and characterizations have indicated both radiological and chemical contamination are present. A hazard assessment for the town of Tonawanda landfill has been prepared.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- There is lack of characterization information regarding the deep injection wells at Linde, and uncertainty regarding a no further action on this issue.

- DOE's proposal to leave contamination in place at the Town of Tonawanda Landfill is based on the presence of radioactivity from other sources which is planned to be left in place under the landfill closure plan.

- Stakeholders comment on DOE assumed cleanup criteria and future use assumptions has not been obtained.

- Hazardous waste from the owners operations may be mixed with the waste to be remediated under FUSRAP, causing cost recovery or waste disposal problems.

- A potential waste vault located on site has not been characterized.

- Adjacent properties or vicinity properties have not been identified and include in the project scope, which may effect budget and schedule.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

This site is not on the National Priorities List and is being remediated generally under CERCLA. USACE is the lead federal agency for ensuring consistency with the NCP and selection of a remedial action, which is protective of human health and welfare and the environment. The State of New York has been involved in technical consultation with DOE and their continued involvement will be sought by USACE. Community participation in the CERCLA remedy selection process has been provided by DOE primarily through contacts with a local community group known as the Coalition Against Nuclear Waste in Tonawanda (CANiT), as well as by sponsoring public information meetings and seeking public comment. DOE furnished funds for CANiT to retain a noted scientific consultant to furnish technical assistance for their reviews. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site, including the members of CANiT and other groups.

Since the Linde property is owned by a private business which is still operating, USACE will contiue to coordination with the owner, to ensure their cooperation with necessary response actions and minimize to the extent possible impacts to their operations.

Over the years, DOE has been requested to furnish promises regarding remedial actions to be conducted at the Tonawanda sites, from congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at Tonawanda. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project. In general, these requests concern not creating a waste storage area for the Tonawanda or other sites at this location, consistency of the remedy with the planned land uses for the site, making progress on the Linde property response actions, and seeking community support for the final remedy.

Some requests, such as one to send waste for offsite disposal outside the State of New York may not be fair to other states. USACE will review them to determine an approach that is in the overall best interests of achieving the goals of CERCLA.

Legal Issues. The Linde property has had a series of CERCLA removal actions and building interior cleanup actions conducted under DOE's authority to establish standards pursuant to the Atomic Energy Act. Work needed to move forward toward a final remedy under CERCLA must be undertaken by USACE in order to reach a final remedy decision and complete all response actions at the site. USACE is evaluating what additional data is needed to move forward to a final remedy decision, particularly for subsurface areas at the site. If the Linde operations have caused the release of other hazardous substances in the areas where materials will be removed for offsite disposal, USACE will obtain the necessary information for proper disposal. The Town of Tonawanda municipal landfill closure may involve work or contribution claims and USACE will gather the necessary information to respond appropriately to any such claims.

Remediation plans may require either onsite decontamination/containment or restriction of future uses of the property. The current future use is for industrial purposes. In addition, the cleanup standards for onsite buildings may not allow for demolition or modification.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, both interim removal actions and remedial actions will be performed. An EECA has been developed which will provide for Building 30 demolition. Tasks for this action include: demolition of the building, recycling scrap metal where possible, and transporting and disposing of wastes. Remedial actions will also be performed to remove subsurface contamination and may include the following document preparation: hazard assessments, remedial investigation, feasibility studies, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Tasks for the remedial

action may include exhumation of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially generated contamination.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Interim Removal Action	Ongoing	Fall 1998
• Remedial Action Planning	Ongoing	Winter 1999
• Record of Decision	Spring 1999	Summer 1999
• Remedial Action	Summer 1999	Summer 2000
• Project Close-out	Summer 2000	Fall 2000

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Cost - FY98 to Completion Completion Date	 (In Millions)
DOE ACP	2001	37.5
DOE TYP	2001	37.9
USACE Baseline	2000	33.2
USACE Conservative	2000	33.2

Note: USACE or DOE estimates do not include any potential additional adjacent or vinicity properties.

New York, Niagara Falls Storage Site (NFSS) FUSRAP Site

1. SITE LOCATION AND DESCRIPTION

Location. The Niagara Falls Storage Site (NFSS) is a federal owned 191 acres site located in the township of Lewiston, NY, approximately 19 miles northwest of Buffalo. The clay-capped grass covered repository waste containment structure occupies approximately 10 acres of the 191 acre.

History. Beginning in 1944, NFSS was used to store waste materials from processing very rich Belgian Congo ores for use in the Manhattan Engineering District project. Material stored on site included 234,770 cubic yards of low activity radioactive wastes and 14,390 cubic yards of high activity radioactive residues. In 1983-1985, the DOE consolidated all the on-site radioactive materials in a below ground containment structure. In 1986, the area containing the wastes/residues was covered with a cap designed to retard radon emissions and rainwater infiltration. DOE has operated the site as a disposal facility under the Atomic Energy Act.

Contamination. The "residues" remaining after uranium extraction contain a high concentration of the uranium decay products. The primary contaminants of concern in the residues are radium-226 and its decay products, and thorium-230. The residues designated as "K-65 residues" contain the greatest concentration of radioactive material. In addition to the residues, there are large amounts of other radioactively contaminated materials (termed "wastes") stored at NFSS which have much lower concentrations of radium-226 and thorium-230.

2. OVERVIEW AND STATUS OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

The DOE restoration approach addressed both on site buildings, wastes and residues. It was proposed to decontaminate buildings 401/403 to current surface criteria, which would result in removal and disposal of 160 cubic yards of contaminated material. It was also proposed that the residues and wastes would be left in the waste containment structure (WCS) as a near term remedy because no known treatment technology has been demonstrated to be effective to render these residues acceptable for disposal. Additionally, a disposal facility that is currently willing to accept the untreated residues has not been identified. Note that a long term cover was not included for this alternative. Long term surveillance and maintenance was to be provided. No groundwater assumptions were explicitly stated, but the conclusion that local groundwater is not threatened was implicit in the remedy. This remedy was projected to cost 6 million dollars and to be completed by 2002. It was assumed that land usage will remain industrial/commercial with restrictions.

2.2 Site Status

This site was initially designated into the Surplus Facilities Management Program in 1980 and then transferred into the FUSRAP Program in 1991. Both radiological and chemical contamination are present. An environmental impact statement and NEPA record of decision were completed in 1986. Radiological surveys and characterizations have been conducted. Continue current operation and maintenance of the waste containment structure to ensure its integrity.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- DOE's estimate assumed continued long-term monitoring and maintenance, but did not include possible removal of the residues and wastes or placement of a final cap on the existing disposal cell.
- The CERCLA site investigation and remedy selection process has not been conducted by DOE, which had managed the site following NEPA procedures.
- No existing disposal facility has been identified which will accept the untreated high activity residues if they are removed.
- No treatment process has been established for these wastes.
- A hazard assessment has not been conducted to determine potential risks to workers under a removal scenario, or the impact of a natural disaster on the safety of residue left in place needs to be performed.
- Assessment of the viability of the existing disposal cell for long-term management of any wastes at the NFSS needs to be performed.
- This project will not be completed by 2002 under this scenario.
- Security at the site needs to be assured as long as residues and/or waste remains in place.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

This site is not on the National Priorities List. It is real property owned by the United States. DOE has conducted work on this site pursuant to the National Environmental Policy Act (NEPA) and published an Environmental Impact Statement (EIS)in 1986. USACE will conduct work at this site in accordance with CERCLA, and will act as the lead federal agency to ensure consistency with the CERCLA process. The State of New York has been involved in technical consultation with DOE and their continued involvement will be sought by USACE. DOE had included public comment in the course of the NEPA process. Community participation has been provided primarily through contact with a local community group known as Residents Organized for Lewistown-Porter Environment (ROLE). USACE will seek community participation in the CERCLA process by making site information available to the public and requesting public comment on any proposed actions to be conducted at this site.

Over the years, DOE has received requests for promises regarding the ultimate disposition of the waste currently stored at the Niagara Falls Storage Site, from Congressional members and members of the public. DOE officials have made some general or specific commitments regarding the future actions at the NFSS. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project. In general these requests have concerned not disposing of additional waste at the NFSS, removal of all or part of the waste at the site to an off site location, and seeking community support for a final decision. USACE will make all site information available to the public, will consider all the comments submitted regarding any final decision and will select a remedy which will be protective of the public and the environment. Innovative technology solutions will be actively investigated by USACE, including obtaining information from DOE regarding new technologies being researched at their other sites.

Legal issues. Previous actions at the NFSS have not been processed under CERCLA, but USACE will be required to conduct response actions consistent with CERCLA and the NCP. A considerable amount of site data is already available, so USACE will assemble this data for consideration by the agency and the public as required by CERCLA. Any interim or final response actions will be selected in accordance with the requirements of CERCLA, after consultation with interested regulatory officials and an opportunity for comment by the public.

3.2 Constraints

- The time required to obtain easements or agreements needed to perform long term monitoring on adjacent off site parcels may impact costs and schedules.

- A determination is needed on whether or not the National Research Council recommendations are valid (i. e., remove K-65 and other residues and treat them, versus leaving them in place under a permanent long term cap).

- The availability of technologies to treat the K-65 waste prior to shipment and a disposal facility to accept this waste.

4. USACE EXECUTION

4.1 USACE Remediation Plan

Pursuant to closure, both an interim removal action and remedial actions will be performed. An EECA may be developed which will provide for vicinity property (VP) environmental restoration in addition to building decontamination and demolition. Tasks for the VP interim action include: removal of subsurface wastes before processing, containerizing, analyzing, transporting, and disposing of the wastes. Tasks for the building interim action include: decontamination of Building 401, removal of contaminated exterior soil, decontamination of Building 403, and long-term monitoring of the site. While near term plans have been made to maintain the Waste Containment Structure, long-term plans may include the removal and treatment of the wastes before transportation and disposal at a permitted facility. A decision will be made after all data is gathered and available alternatives are analyzed. Prior to any remedial action, USACE proposes to perform a risk assessment, and evaluate all reasonable alternatives

including (1) removing the high level wastes, (2) removing all the waste, and (3) leaving all the contamination in place with a permanent cover. In accordance with CERCLA, the selected remedy will meet all cleanup criteria and be protective of human health and welfare and the environment.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Remedial Investigation/Feasibility Study	Fall 1998	Fall 2002
• Treatablity Studies	Fall 1999	Fall 2001
• Remedial Action Planning	Fall 2001	Fall 2002
• Record of Decision	Spring 2003	Fall 2003
• Remedial Action	Fall 2003	Fall 2006
• Project Close out	Summer 2006	Fall 2006

Note: The above schedule assumes baseline approach, removal of the K-65 waste, the remaining material will remain in place.

4.3 Cost

These USACE costs are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases		Cost - FY98 to Completion Completion Date	(In Millions)
DOE ACP		2002	5.3
DOE TYP	2006	224.8	
USACE Baseline		2006	285.0
USACE Conservative		2008	434.5

Note: USACE baseline cost provides for the removal and offsite disposal of the high activity residues only and the conservative provides for the removal and offsite disposal of all contaminated soils.

New York, Seaway FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The Seaway Site is currently a privately-owned closed and fenced sanitary landfill in the Town Tonawanda, New York, approximately 3 miles northeast of Buffalo, NY. The entire Seaway Landfill is 93 acres, with radioactive contamination on approximately 16 acres. Area A encompasses about 12 acres and Areas B and C the remaining 4 acres. This assessment includes Seaway Areas A, B, and C. Seaway Area D is grouped with Ashland 1 for clean-up.

History. The former Linde Air Products Division of Union Carbide processed uranium ores at its facility in Tonawanda under contract to the Manhattan Engineer District (MED) from 1942 to 1946. From 1944 to 1946, uranium processing wastes were transported from Linde to a 10-acre area, now called Ashland 1. Between 1974 and 1982, Ashland Petroleum excavated and transported about 6,000 cubic yards of soil containing radioactive waste to a landfill area on what is now known as Ashland 2. Some of the residue from Ashland 1 was also moved and deposited in the Seaway Site . The property was operated as a landfill by Browning-Ferris Industries (BFI).

Contamination. The primary contaminants of concern at the site are uranium-238, radium-226, and thorium-230 and the decay products associated with these contaminants. The concentration of radioactive contaminants is greatest in Area A where the contamination is at the surface. The radioactive contaminants in Areas B and C are buried beneath an estimated 40 feet of refuse.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

To identify the optimal method for remediating the site, extensive information on the contamination was gathered during several studies which include:

- Remedial Investigation Report for the Tonawanda Sites, DOE, February 1993.
- Baseline Risk Assessment for the Tonawanda Sites, DOE, August 1993.
- Feasibility Study for the Tonawanda Sites, DOE, November 1993.

This information was coupled with input from the community to develop several potential remediation alternatives. A DOE-prepared plan was issued in November 1993 which included leaving the contaminated material in the Seaway Landfill. Public opposition to this plan led DOE to remove it from consideration.

2.2 Site Status - Seaway Areas A, B, C - (Seaway Area D is addressed in Ashland 1)

This site was designated into the FUSRAP Program in 1984. According to DOE, both radiological and chemical contamination are present. Radiological surveys and characterizations and some chemical characterization have been conducted. A remedial investigation, feasibility study, baseline risk assessment and a proposed plan will be developed and disseminated to the public and concerned parties.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- DOE's estimates assumed no further remedial action was necessary. This plan has not yet been reviewed or approved by stakeholders.
- No study has been performed to determine impacts to groundwater by leaving this waste in place.
- Radioactive wastes are buried under as much as 40 feet of municipal wastes. Characterization and assessment on removal of these "overburden" wastes has not been performed.
-
- The status of the BFI commercial landfill closure has not been finalized coordination with that closure action will be required.
- The DOE estimates did not include any funding for long term montoring of the landfill for leavng the waste in place.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

The site is not on the National Priorities (NCP) List and is being remediated in accordance with CERCLA. USACE is the lead federal agency for ensuring consistency with the NCP and selection of a remedial action which is protective of human health and the environment. The state of New York has been involved in technical consultation with DOE and their continued involvement will be sought by USACE. Community participation in the CERCLA remedy selection process has been provided by DOE primarily through contact with a local community group known as the Coalition Against Nuclear Waste in Tonawanda (CANiT), as well as by sponsoring public information meetings and seeking public comment. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site, including the members of CANiT and other groups.

Over the years, DOE has received requests for a number of promises regarding the final remedy to be conducted at this and the other Tonawanda sites from Congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at Tonawanda. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project. In general, these requests concern not creating a storage area for the Tonawanda or other sites at this location, consistency with the local planned uses of the property, and seeking community support for the final remedy.

At this site, the most protective approach overall may be to leave the deeply buried waste onsite with a suitable cover. Some requests, such as one to send waste for offsite disposal only outside the state of New York may not be fair to other states, so USACE will review them to determine an approach which is in the overall best interests of achieving the goals of CERCLA.

Legal issues. The Seaway Areas A, B, and C will be ready for the issuance of a proposed plan for a final remedy in the near future. USACE will ensure that the ROD is in compliance with CERCLA. There is certainly contamination at this landfill site which is the result of other operations and the selected remedy must be consistent with the proper closure of the landfill. In addition, other parties appear to be liable under CERCLA for a share of the costs of response. USACE will take appropriate action to select a remedy which does not impair the overall closure of the landfill by others and will seek contributions from parties whose actions have caused the incurrence of costs. There is a potential claim from BFI for lost revenue to their landfill operation. If this is pursued, USACE will work with DOE to determine the appropriate response.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, remedial planning will be performed. The following remedial action documentation may be prepared: a proposed plan for "no further action"; site-specific work plans to include possible capping and/or exhumation actions, a record of decisions, and final closure documents. Further, environmental documentation activities will be performed and may include historical records search and groundwater characterization. Tasks for the capping remedial action may include: geotechnical design and construction of a CERCLA cap. Tasks for the remedial action may include removal of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially-generated contamination.

4.2 Site Schedule and Milestones

Task	Start Date	Completion Date
• Remedial Action Planning	Ongoing	Fall 1998
• Record of Decision	Fall 1998	Winter 1999
• Implement Remedial Action	Spring 1999	Fall 1999
• Project Close-out	Fall 1999	Fall 2000

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

	Cost - FY98 to Completion	
Cases	Completion Date	(In Millions)
DOE ACP	1999	0.25
DOE TYP	1999	0.25
USACE Baseline	2001	10.20
USACE Conservative	2001	10.20

Note: DOE cost to complete in either case did not include a landfill cap meeting state standards as was called for in the project scope; the USACE cost does include the cap.

Ohio, Luckey FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The Luckey site consists of 40 acres and is approximately 22 miles southeast of Toledo, Ohio.

History. The site was used to operate a magnesium production plant for the U.S. Government in the 1940s. In 1949, the Atomic Energy Commission added a beryllium production facility at the site. This beryllium production facility operated between 1949 and 1958. Radioactive contamination at Luckey may have originated from contaminated scrap steel purchased during the early 1950s to control chlorine emissions during magnesium processing. The source of the radioactivity was not firmly established at the time the site was designated into the FUSRAP program. The Luckey plant was closed in 1959. Several companies have owned and operated on the site since 1959,and their operations may have involved releases of contaminants at the site. The site is currently an active commercial wheel manufacturing facility owned by Motor Wheel Company. Structures include manufacturing facilities, warehouses, and utility buildings. There are several lagoons and spoil areas on the property. The northern half of the property is leased for farming.

Contamination. The radiological constituents of concern are uranium-238, radium-226, and throrium 230. Chemical contamination consists principally of beryllium. Other hazardous substances are likely present as a result of the later site operations. Site contamination of concern to FUSRAP is assumed to be the result of:

- Surface storage of scrap drums containing radioactive residues from Lake Ontario Storage Area.
- Surface storage of ores, spoils, and process residues.
- Ore processing operations.
- Waste disposal areas, including trenches, pits, the landfill, and possibly the Luckey dump.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

The DOE restoration approach included onsite consolidation, recontouring and revegetation of approximately 35,000 cubic yards of soil. The site is expected to continue to exist under an industrial land use. Cleanup standards were not specified and DOE had developed an approach for remediation and associated costs for project completion by 2000 at an estimated cost of $31M.

The site is currently in the characterization phase, so potential groundwater impacts have not yet been determined.

2.2 Site Status

A preliminary radiological survey of the site was conducted in 1988. DOE designated this site into FUSRAP Program in 1991. According to DOE, both radiological and beryllium contamination are related to AEC activities. In addition to the preliminary radiological surveys, site investigations and characterizations are currently being conducted.

2.3 USACE Assessment

Based on the USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- The assumption that the current property owners would allow the consolidation and disposal of contaminated soil onsite is not supported.
- There is a lack of a detailed project scope and data to fully characterize the estimated project cost, schedule and budget.
- The proposed strategy did not address potential contamination of adjacent properties, which was suspected as early as the 1950s.
- The proposed strategy did not include a final remedial decision and did not follow the CERCLA process as outlined in the NCP.
- This project would not have been completed by the year 2000 under this strategy.
- Non-radioactive beryllium remediation will significantly increase the scope and cost of the project.

3. COMMUNITY & REGULATORY CONSIDERATIONS

3.1 General Issues

The Luckey site is not listed on the National Priorities List, and USACE is now the lead federal agency for remediation in accordance with CERCLA. The State of Ohio Environmental Protection Agency has been involved in technical consultation with DOE and their involvement will be encouraged by USACE. Community participation in the CERCLA remedy selection process will be provided by making site information available for public review, sponsoring public information meetings, and seeking public comment. USACE will actively seek community participation by encouraging all interested persons to review information and comment upon the response actions to be conducted at this site. USACE has discovered no special requests or concerns to DOE or commitments from DOE regarding the response actions at this site.

Legal issues. The CERCLA process is in the characterization stage at this site, and response actions will be conducted consistent with the NCP. Owners and operators at the site subsequent to U.S. involvement have conducted operations which appear to have caused releases of hazardous substances, and at least one prior owner is reported to be working under a State RCRA corrective action order at various areas of the site. USACE will seek the necessary information to ensure that any mixed waste at the site is properly characterized and disposed at an authorized facility. If costs are incurred which are the responsibility of other parties, USACE will arrange for an equitable contribution to the cost of response due to the presence of the other parties' contamination.

3.1. Constraints

- The time required to obtain authority to access property may impact initiation of characterization studies which are scheduled to resume in the spring of FY98.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, a complete sitewide characterization for radioactive and chemical contaminants, in addition to a hazard assessment and possibly removal and remedial action, will be conducted. If the hazard assessment indicates potable water is adversely affected or if contamination is spreading off-site, an EE/CA will be prepared for execution. To achieve final closure, remedial actions will be performed as necessary and may involve preparation hazard assessments, remedial investigations, feasibility studies, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification and groundwater characterization. Tasks for the remedial action may include exhumation of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially-generated contamination. Potentially Responsible Parties will be apprised of their liabilities.

The land use for this site is industrial, although agriculture land is immediately surrounding the site. USACE is considering partial excavation as planned by DOE. If an interim removal action is conducted, the final action will occur after further site information is obtained and a final remedy decision under CERCLA is made.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Site Investigation and Characterization	Ongoing	Fall 1998
• Remedial Investigation and Feasibility Studies	Winter 1999	Fall 1999
• Remedial Action Planning	Fall 1999	Spring 2000
• Record of Decision	Spring 2000	Summer 2000
• Remedial Action	Summer 2000	Summer 2004
• Project Close-out	Summer 2004	Fall 2004

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Cost - FY98 to Completion Completion Date	 (In Millions)
DOE ACP	2000	30.2
DOE TYP	2000	30.0
USACE Baseline	2004	157.3
USACE Conservative	2005	179.9

Note: Beryllium contamination is much more extensive than previously known; potential quantities of soil to excavate range between 100,000 and 125,000 cubic yards. Baseline cost assumes the lower quantities of soil and not all of the soil will be required to be disposed of offsite. The conservative cost assumes both the higher quantities are removed, and and all the contaminated soild will be disposed of offsite.

Ohio, Painesville FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The 60-acre site is a former Government-owned property in Painesville, Ohio, approximately 22 miles northeast of Cleveland.

History. The Defense Plant Corporation constructed a magnesium reduction facility in the early 1940's. From the early 1940s to early 1960s, the site was operated as a magnesium production facility for the General Services Administration by Diamond Magnesium Company. In the early 1950s, approximately 1,650 tons of radiologically-contaminated scrap steel was delivered to the site and used by its operator to control chlorine emissions during magnesium processing. In the 1960s the property was sold in two parcels to the current owners, Uniroyal Chemical Co. and Lonza, Inc., who continue to use their properties for chemical manufacturing.

Contamination. Primary radiological contaminants of concern are radium-226, thorium-230, and uranium-238.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

The DOE restoration approach assumed that a total of 4,000 cubic yards would be removed by excavation..

The site is expected to continue under an industrial land use.

2.2 Site Status

This site was designated into FUSRAP in 1992. According to DOE, preliminary radiological surveys and characterizations indicated that radiological contamination is present. However, chemical characterization has not been performed to date.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Lack of characterization at the two on-site waste ponds and groundwater uncertainties. Mixed waste is likely to be present at the site, and RCRA requirements for the responsible operator may require negotiations

- DOE's proposed cleanup criteria have not been proposed to the stakeholders and the public.

3. COMMUNITY & REGULATORY CONSIDERATIONS

The Painesville site is not listed on the National Priorities List and USACE is now the lead federal agency for remediation in accordance with CERCLA. The State of Ohio Environmental Protection Agency has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. The public comment process will be provided by making site information available for public review and by sponsoring public participation by encouraging all interested persons to review information and comment upon the response actions to be conducted at this site. USACE has discovered no special requests or concerns to DOE or commitments from DOE regarding the response actions at this site.

Legal issues. The CERCLA process is in the response alternatives analysis stage at this site, and response actions will be conducted consistent with the NCP. USACE will seek the necessary information to ensure than any mixed waste at the site is properly characterized and disposed at an authorized facility. If costs are incurred which are the responsibility of other parties, USACE will arrange for an equitable contribution forthe cost of response due to the presence of the other parties' contamination. The cleanup standards at this site will be evaluated in light of the future use of the property.,

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, a remedial action will be performed. The following remedial action documentation may be prepared: hazard assessments, remedial investigation, feasibility studies, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Tasks for the remedial action may include exhumation of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns AEC-related contamination from commercially-generated contamination. Potentially Responsible Parties will be apprised of their liabilities.

The land use for this site is industrial. USACE is considering partial excavation as planned by DOE. If an interim removal action is conducted the final action will occur after further site information is obtained and a final decision under CERCLA is made.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Site Investigation and Characterization	Ongoing	Summer 1998
• Remedial Investigation and Feasibility Studies	Summer 1998	Fall 1998
• Remedial Action Planning	Fall 1998	Winter 1999
• Record of Decision	Winter 1999	Spring 1999
• Implement Remedial Action	Summer 1999	Spring 2000
• Project Close-out	Spring 2000	Fall 2000

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

		Cost - FY98 to Completion
Cases	Completion Date	(In Millions)
DOE ACP	1999	8.0
DOE TYP	1999	8.0
USACE Baseline	2000	10.3
USACE Conservative	2000	10.3

Connecticut, CE FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location: CE site is a 1,100-acre area in Windsor, Connecticut, approximately 8 miles north of Hartford, Connecticut.

History: The site is comprised of more than a dozen buildings. CE, under contract with the Atomic Energy Commission (AEC), fabricated nuclear fuel assemblies using highly enriched uranium (HEU) from 1958 to 1961. CE also conducted licensed commercial nuclear and chemical fabrication on the site from 1961 to 1993. A Naval reactor prototype was built on a portion of the site and is owned by the DOE Office of Naval Reactors, which is decontaminating, demolishing, and disposing of all structures under a Navy/DOE program.

Although the commercial nuclear fuel fabrication ceased in 1993, CE is still licensed by the Nuclear Regulatory Commission (NRC) for other commercial nuclear activities including refurbishment of nuclear power plant equipment.

Contamination: HEU is the primary radiological contaminant of concern at the site that will be addressed by FUSRAP. Contaminants at the CE Site include radioactive materials, heavy metals, and organic hazardous substances.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

Only limited site characterization data is available. The presumed DOE remedy for programmatic planning purposes only included the decontamination of Building 3 and Building 6 using risk-based cleanup criteria for areas containing greater than 20% uranium-235 enrichment. The remedy may also include excavation of soils and materials at the drum burial pit and the waste storage pad and sediments in Site Brook, if those areas contain greater than 20% uranium-235 enrichment and exceed risk-based site-specific cleanup guidelines.

DOE had not yet developed the site-specific cleanup guidelines. Based on the presumed remedy, a total of 5,500 cubic yards of waste would be disposed at a commercial waste disposal facility. Groundwater was not addressed in the proposed remedy, as the site has not been characterized.

2.2 Site Status

Specific portions of this site were designated into FUSRAP in 1994. Both radiological and chemical contaminations are present. Limited radiological surveys in Buildings 3 and 6 have been conducted.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- The facility operator and the government do not agree on the enrichment levels for uranium resulting from AEC activities. The government has proposed using a fingerprint of ñ20% u-235 enrichment to discern AEC related radioactive waste from other commercial radionuclide manufacturing. A much lower enrichment is requested by the facility operator, which could extend the government work to areas overlapping release areas for the commercial operations.

- Only limited information exists on the extent of contamination at the site, including the potential for mixed waste, groundwater, or surface water/sediment contamination.

- Unresolved issues with CE include, NRC closure and RCRA corrective actions required of CE, their affect on cost or schedule, and arranging CE agreement to ensure this work is coordinated and they pay their share of the costs.

- Only limited information exists on project scope and data to allow development of an accurate estimate of project cost, schedule and annual budget requirements.

- Based upon these uncertainties, a 2002 completion date is uncertain for this facility.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

This site is not listed on the National Priorities List. USACE will respond as the lead federal agency under CERCLA only for the portion of the radioactive hazardous substances at the site that the United States may decide to accept responsibility for under CERCLA. If the United States should decide to conduct work at this site, technical consultation from the State of Connecticut, Department of Environmental Protection, Bureau of Air Management will be requested by USACE. Although EPA Region I is involved in the RCRA activities at the site, they have indicated no concern to date about the radioactive contamination. The Nuclear Regulatory Commission (NRC) has regulatory authority at CE involving radioactive waste. CE has a commercial NRC license and has conducted cleanup of radioactive contamination under this license. Public information will be provided by USACE on any work and comment from the public will be requested for any response action decisions. The local Windsor Department of Health Services has indicated it would like to be the towns main point of contact for public information purposes. At this time, no particular community groups have been identified to USACE that have concerns regarding the cleanup work at this site.

Legal Issues. CE, as the owner and operator of this site, has responsibility for closure under both RCRA corrective action and NRC license requirements. CE has requested that FUSRAP conduct response actions at numerous areas on their property before they conduct work required of them under RCRA, NRC rules, or CERCLA. CE has requested that the standard of FUSRAP eligibility of greater than 20% HEU be eliminated and that either there should be no standard or only 5%If FUSRAP proceeds to cleanup radioactive and/or other contamination that is the responsibility of CE, then problems of cost recovery or contribution and possibly mixed waste or hazardous waste disposal subject to RCRA will need to be addressed by USACE. USACE will evaluate the best approach to this site that satisfies responsibilities under CERCLA and is in the best interest of the public and the United States. CE has also requested that USACE perform determination surveys at the downtown Rapaport Building for possible inclusion in FUSRAP.

3.2 Constraint

- Inability to reach agreement with the owner on cleanup may impact schedule and cost.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

USACE will pursue obtaining historical documentation, which relates AEC activities to reported areas of contamination, as well as information on CE activities. Site characterization of authorized FUSRAP areas may be conducted as the initial work at the site. An EECA may be developed to provide for building decontamination and waste disposal. Tasks for this action may include: source area removal within the building, recycling scrap metal where possible, and transporting and disposing of wastes. Possible environmental documentation includes proposed plans, site-specific work plans, a record of decisions, and final closure documents. Confirmation testing would be performed to ensure standards are maintained. It is assumed the land use will continue to be industrial, as CE intends to continue ownership and operation at the site.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Site Inspection	Spring 1999	Fall 1999
• EECA	Winter 1999	Fall 1999
• Remedial Investigation and Feasibility Study	Winter 1999	Fall 2000
• Remedial Action Planning	Summer 2000	Fall 2000
• Record of Decision	Fall 2000	Winter 2001
• Remedial Action Implementation	Spring 2001	Fall 2004
• Project Close-out	Winter 2005	Summer 2005

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2002	26.7
DOE TYP	2004	28.4
USACE Baseline	2005	40.7
USACE Conservative	2005	99.3

Note: The USACE estimates includes additional groundwater and site characterization, potential groundwater and additional soil remediataion, the Rapaport Building vicinity property, and CERCLA close out process. The conservative estimate is for additional soil removal in deep locations.

Massachusetts, Ventron FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The Ventron site is a 3-acre, privately-owned industrial site 15 miles northeast of Boston.

History. The site includes a 100,000 square foot building containing a furnace and leaching facilities, a mixing room, a drying room, and analytical laboratories. From 1942 to 1947, uranium processing activities were conducted under contract with the Manhattan Engineer District. From 1940 to 1986, the owner conducted commercial uranium and thorium manufacturing activities. All production operation at the site ceased in November 1994.

Contamination. Primary contaminants of concern are uranium-238, radium-226, thorium-230, and thorium-232. Other contaminants are present but are the responsibility of the current owner.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

In March 1997, DOE completed a removal action, consisting of removal and disposal of approximately 9,500 cubic yards of radioactive waste.

2.2 Site Status

A post remedial action report was prepared by DOE in September 1997. This report identified potential areas that may not have been remediated. DOE directed that a risk assessment be conducted to evaluate exposure.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted as related to the 2002 and 2006 baseline budgets:

- The risk assessment and final remedy decision will need to be performed before a determination is made that the site requires no further cleanup under FUSRAP.

- The Post-Remedial Action Report (PRAR) needs to be completed and submitted to the facility owner who must satisfy final closure under the Massachusetts Contingency Plan (MCP).

3. COMMUNITY AND REGULATORY CONSIDERATIONS

This site is not listed on the National Priorities List, and USACE is now the lead federal agency under CERCLA. DOE's removal action was intended to complete all necessary site response actions, and USACE will evaluate if any further work is required under CERCLA and document the final decision concerning completion of response action work at the site. The owner is

conducting cleanup at the site in accordance with the Massachusetts Contingency Plan and plans to complete its cleanup work at the site in the near future and ultimately to sell the property. The State has been kept informed of the DOE work at the site and will be offered the opportunity to review and comment on all USACE documents and proposed decisions regarding this site. Local officials and members of the public have expressed an interest in the site and have been advised of site information through the administrative record. They will be offered the opportunity to comment on any USACE decisions on the need for further work and closeout of the site in compliance with CERCLA process.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to site closure, a post remedial action dose assessment and a record of decision for "No Further Action" will be developed When appropriate, documentation of CERCLA remediation completion will be developed, the interested stakeholders will be advised, and the site will be closed out for the FUSRAP .

4.2 Site Schedule

Task	Start date	Completion Date
• Dose Assessment Development	Fall 1998	Winter 1999
• Record of Decision	Winter 1999	Spring 1999
• Close-out from FUSRAP	Spring 1999	Summer 1999

4..3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98 .

Cases	Cost - FY98 to Completion Completion Date	 (In Millions)
DOE ACP	1998	0.03
DOE TYP	1998	0.03
USACE Baseline	1999	0.07
USACE Conservative	1999	0.07

Massachusetts, Shpack Landfill Site FUSRAP Site

1. DESCRIPTION OF PROJECT SITE

Location. The Shpack Landfill Site is an 8-acre abandoned and fenced domestic and industrial landfill which was privately operated from 1946 to 1965. It is located along the Norton/Attleboro town boundary line. Approximately 5.5 acres is on the Norton side of the boundary line and 2.5 acres is on the Attleboro side.

History. In June 1986, the site was listed on the National Priority List (NPL); EPA is the lead federal agency for this site. In September 1990, the EPA executed an Administrative Order on Consent with a group of Settling Potentially Responsible Parties (PRPs) for the performance of a remedial investigation/feasibility study (RI/FS). The initial phase of the RI has been completed.

Contaminants. The primary radioactive contaminants of concern are high-enriched uranium. The site also contains volatile organic compounds (VOCs) and heavy metals.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

DOE's approach has been to conduct limited site investigation and removal actions under its National Contingency Plan authority. EPA will select a remedy after the PRP group completes the RI-FS. DOE was working toward removing this site from FUSRAP since it was not an AEC or MED operation.

2.2 Site Status

This site was designated into FUSRAP in 1980. DOE has performed preliminary radiological surveys and characterizations. The NRC subsequently performed an independent radiological survey and concluded the contamination was not attributable to MED activities. Further, the EPA has designated PRPs, and the government is not among them. As such, the government has no plans for environmental response under the FUSRAP.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Involvement of this site in FUSRAP appears to be questionable.

Massachusetts, Shpack Landfill Site FUSRAP Site

3. COMMUNITY AND REGULATORY CONSIDERATIONS

EPA is the lead agency at this NPL site and they have an Administrative Order with the Settling Potentially Responsible Parties for the completion of an RI/FS. EPA is responsible for completing necessary response actions and providing for community participation in remedy decisions for this site.

DOE does not appear to have made any written or verbal commitments at this site. DOE is not a settling PRP and has not been identified as a PRP by EPA. The Administrative Order reportedly requires the Settling PRPs to coordinate with DOE in regard to radiological contamination at the site.

The radioactive contaminants are believed to have come from Metals and Controls, Inc. (now Texas Instruments) and others who had used the landfill to dispose of trash and other materials from 1957-1965.

4. USACE EXECUTION

4.1 USACE Remediation Plan

Removal of the site from the FUSRAP Program is underway.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Deleting site from FUSRAP	Ongoing	Summer 1998

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	1998	1.10
DOE TYP	1998	1.10
USACE Baseline	1998	0.03
USACE Conservative	1998	0.03

New Jersey, Maywood FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location: This site is comprised of three connected areas which aggregate 140 acres, consisting of the 11.7-acre U.S. Government-owned Maywood Interim Storage Site (MISS), an 18-acre pharmaceutical manufacturing site, and nearby adjacent properties.

History: The site was owned and operated from 1916 to 1959 by Maywood Chemical Company, which processed minerals and created thorium waste. From 1959 to the present, the site has been owned and operated by Stepan Company, which manufactures chemicals and pharmaceuticals. The three areas contain 88 residential, commercial, and government-owned properties. Remediation of 275,000 cubic yards of soils from the pharmaceutical manufacturing property remains to be accomplished, along with other, residential and commercial Vicinity Properties.

Contamination: Primary radioactive contaminants of concern are thorium-232, radium-226, and uranium-238. Other organic and metals contaminants are also present on this site.

2. OVERVIEW OF DOE CLEANUP

2.1 DOE's Cleanup Plan for the Site

Using the CERCLA removal process, DOE removed contamination from some of the properties (primarily residential), stockpiled contaminated soils on the MISS, and began removing contaminated soils from the MISS to an approved landfill.

2.2 Site Status

Congress directed DOE to conduct remedial action at this site in 1984. DOE then placed this site into the FUSRAP Program. According to DOE, both radiological and chemical contamination is present at the site. Remedial investigation and baseline risk assessments were completed in 1992 and 1993, respectively.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Groundwater at the site has not been fully characterized.

- Retention ponds and burial pits on MISS and Stepan have not been fully characterized. Associated volumes and potential risks to remedial action workers will need to be determined.

- Only limited characterization of the commercial vicinity properties has been performed.

- Associated volumes and potential for chemical waste on properties required determination.

- The site has not been adequately characterized. Mixed waste is likely in some areas of the site. Estimating mixed waste volumes and costs are difficult to quantify at this time.

- The EPA Region II Administrator established the cleanup criteria for this site as a result of a formal dispute with DOE. They are based on residential property usage, which applies to portions of this site but not to all of them, such as the currently operating chemical plant.

- The mechanism for long-term management of inaccessible soils (i.e., under Route 17 and operating commercial facilities) has not been established.

- Access to commercial properties for remediation has not yet been established.

- The potential to use lower cost disposal alternatives for the remaining wastes has not been fully explored.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

The Maywood site is listed on the National Priorities List and is the subject of a Federal Facilities Agreement between DOE and U.S. EPA Region II. USACE is now the lead federal agency for the conduct of response actions at the site and will select the final remedy with the concurrence of EPA. Under the FFA, there are mandates for consultation with EPA on all CERCLA work, a requirement for selection of the remedy with EPA, and deadlines subject to stipulated penalties. The State of New Jersey is not a party to the FFA, but has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. Community participation in the CERCLA process has been provided by DOE, primarily through contacts with local community officials, community groups including the Cooperative Guidance Group, "Concerned Citizens of Maywood" and other members of the public. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information, attend public information meetings, and comment upon the response actions to be conducted at this site.

In 1984, DOE entered into a Memorandum of Understanding with the Borough of Maywood concerning removal of the Maywood Interim Storage Pile. The aboveground pile has since been removed from the site. USACE will continue to keep Maywood officials and residents advised on all response actions to be conducted in their community.

Over the years, DOE has received some requests regarding the final remedy to be performed at this site, from congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding

response actions to be conducted at the Maywood Site. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project and the program. There have been requests to move all wastes from this site and not leave a disposal cell in place and request not to move wastes from any other location to Maywood Site. There have been requests for cleanup standards at residential levels, and for a selection of a remedy that is supported by the community.

USACE along with EPA will consider all comments submitted regarding the final remedy and will select a remedy that complies with CERCLA and will protect the public and the environment. The cleanup standards will consider site and surrounding current and reasonable future uses of the property. Any final remedy decision will provide for protection of human health and welfare and the environment as required by CERCLA.

Legal issues. At the Maywood site, DOE conducted removal of the aboveground waste pile and initiated cleanup at some of the residential and most municipal properties under an EECA; the final remedy selection for the remainder of the soils under CERCLA is the next major goal at the site. Groundwater characterization requires further work and will be conducted in compliance with CERCLA guidelines. USACE will work with EPA to comply with the procedural requirements of the FFA and CERCLA and move forward with completion of the final remedy. A portion of the Maywood site was operated and commercially by the Maywood Chemical Company and now the Stepan Company. These operations involved disposal of process waste at a number of locations. Some hazardous wastes have been identified in site samples. USACE in coordination with EPA will evaluate if these parties are responsible for the incidence of response costs and will work to obtain an equitable contribution to the response cost from any viable responsible party. In order to ensure that waste materials removed for off site disposal are transported to proper locations, the waste will be characterized to determine if mixed waste is present prior to shipment from the site.

3.2 Constraints:

- Inaccessible contamination (i.e., under Route 17, under existing commercial structures).

- Inability to reach agreements for access with property and utility owners could impact schedules and costs.

- Groundwater characterization has not been completed. A potential exists for major groundwater contamination and unforeseen site conditions which could affect the schedule.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, both interim removal actions and remedial actions will be performed. A removal action to address residential Vicinity Properties was already in progress and will be completed. Tasks for this action include: processing, containerizing, sampling, analyzing, transporting, and disposing of the Vicinity Properties soils. Remedial actions will also be

performed and may include the following document preparation: hazard assessments, remedial investigation, feasibility studies, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Tasks for the remedial action may include removal of wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially generated contamination. Potentially Responsible Parties will be appraised of their liabilities.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Interim Removal Action	Fall 1998	Fall 1999
• Remedial Investigation and Feasibility Studies	Summer 1998	Summer 1999
• Record of Decision	Summer 1999	Fall 1999
• Remedial Action Implementation	Fall 1999	Fall 2002
• Project Close-out	Winter 2003	Summer 2003

Note: Interim Removal Action will complete cleanup at all the residential properties. Remedial Action Implementation involves cleanup at commercial, industrial, and municipal properties. Larger volume of soil will require additional time for safe and appropriate removal and disposal. Groundwater contamination and unforseen site conditions will also require additional time for remediation. Schedule allows for completion of the CERCLA process, which was not included in DOE schedule.

4.3 Cost

These USACE costs are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

		Cost - FY98 to Completion
Cases	Completion Date	(In Millions)
DOE ACP	2002	210.6
DOE TYP	2003	219.0
USACE Baseline	2004	266.2
USACE Conservative	2004	304.8

Note: Both USACE cost estimates include additional volume of soil requiring disposal that was not in DOE's planned scope of work. USACE cost includes additional site characterization , groundwater studies, and costs associated with the CERCLA close out process.

New Jersey, Middlesex Sampling Plant FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. This is a 9.6-acre United States government owned site located in the Borough of Middlesex, NJ.

History. The Manhattan Engineer District (MED) established the Middlesex Sampling Plant (MSP) Government-owned site in 1943 for use in sampling, storage, and shipment of certain ores. As a result of site operations, the buildings and property at MSP became contaminated with radioactive materials. The process buildings and boiler house have since been demolished. The site now contains two interim storage piles: one unit consisting of contaminated material from earlier remedial actions of vicinity properties, and the second unit consisting of contaminated material from the removal action conducted by DOE at the Middlesex Municipal Landfill (MML), as well as other structures and paved or exposed surface areas.

Contamination. Primary contaminants are uranium-238, radium-226, thorium-232, lead, and organic compounds.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

DOE planned the removal of the MML pile after the EECA has been finalized and approved. The site wide EECA identified the removal and disposal of the storage pile; subsurface contaminated soils beneath the storage piles; restore the site grounds; and decontaminate two buildings. Additionally, DOE planned to characterize groundwater and perform hydrogeologic investigations. The cleanup plan includes onsite treatment of MSP soils and subsurface soils and commercial disposal.

2.2 Site Status

This site was designated into FUSRAP in 1980. According to DOE, preliminary characterizations have indicated both radiological and chemical contamination are present at the MSP. Under an interim removal action, cleanup of the drainage ditch and demolition of the process building and boiler house were completed in 1996. An EECA has been developed which will provide for the removal of the above ground MML pile as an interim removal action.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase cost compared to prior DOE estimates:

- Cleanup criteria and the final remedy for the site have not yet been selected or negotiated.
- The potential to use lower-cost alternate disposal for the remaining wastes has not been fully explored.

3. COMMUNITY & REGULATORY CONSIDERATIONS

New Jersey, Middlesex Sampling Plant FUSRAP Site

The Middlesex site is not listed on the National Priorities List. USACE is now the lead federal agency for the conduct of response actions at the site and will select the final remedy. The State of New Jersey has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. Community participation in the CERCLA process has been provided by DOE primarily through contacts with local community officials and members of the public, and by sponsoring public information meetings and seeking public comment. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site.

In 1979, DOE entered into a Memorandum of Understanding with the Borough of Middlesex and the State of New Jersey concerning removal of waste from the Middlesex landfill. The waste from the landfill was moved to the former Middlesex Sampling Plant and ultimately to a disposal facility in the State of New Jersey, if one could be identified. The landfill has since been removed to the storage pile. USACE will continue to keep Middlesex officials and residents advised on all response actions to be conducted in their community.

Over the years, DOE has received some requests regarding the final remedy to be performed at this site, from Congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at the Middlesex Site. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project and the program. There have been requests to move all wastes from this site and not leave a disposal cell in place and requests not to move wastes from any other location to the Middlesex Site. There have been requests for selection of a remedy which is supported by the community. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site. USACE will consider all the comments submitted regarding the final remedy and will select a remedy which complies with CERCLA and will protect the public and the environment. The cleanup standards will consider site and surrounding current and reasonable future uses of the property. Any final remedy decision will provide for protection of human health and welfare and the environment as required by CERCLA.

Legal issues. At the Middlesex site, DOE partially completed demolition of the plant buildings, a removal action for the above ground materials in the MML pile is under consideration, and the final remedy selection for the VP pile and in situ soils under CERCLA is the next major goal at the site. Groundwater characterization requires further work and will be conducted in compliance with CERCLA guidelines. There are known hazardous wastes from the landfill in the MML waste pile, including lead, which currently may be disposed with limited treatment under RCRA land disposal requirements. USACE is evaluating a prompt removal action to provide for disposal at a proper location for the waste from the MML pile prior to the imposition of new standards which may greatly increase treatment and disposal costs.

4. USACE EXECUTION

4.1 USACE Remediation Plan

Pursuant to closure, both interim removal actions and remedial actions will be performed. The interim removal action is planned to be performed on the above-grade MML materials prior to the effective date for the new land disposal regulation treatment standards for lead contaminated soils under RCRA authority. Tasks for this action include: stabilizing, containerizing, sampling, analyzing, transporting, and disposing of the MSS soils. Remedial actions will also be performed on subsurface soils and may include the following document preparation: hazard assessments, remedial investigation, feasibility studies, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Tasks for the remedial action may include removal of wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Interim Removal Action	Summer 1998	Fall 1999
• Site Characterization	Spring 1998	Fall 1998
• Remedial Investigation and Feasibility Studies	Summer 1998	Summer 1999
• Record of Decision	Spring 1999	Summer 1999
• Remedial Action Implementation	Fall 1999	Fall 2001
• Project Close-out	Fall 2001	Spring 2002

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2001	33.9
DOE TYP	2001	34.1
USACE Baseline	2001	46.6
USACE Conservative	2001	46.6

Note: USACE baseline cost for site characterization and building decontamination.

New Jersey, Wayne Interim Storage Facility FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location: This site, owned by the United States government, covers 11 acres in Wayne, New Jersey.

Site History. Radioactive contamination originated from commercial mineral and thorium processing operations conducted by W.R. Grace and Co. and its predecessor from 1948 to 1971. Some 26 vicinity properties were contaminated; however, they have since been restored. The only remaining property to be addressed is the Wayne Interim Storage Site (WISS), a 6.5-acre Government-owned parcel of land. The above grade soils at the WISS have been removed under a previous removal action.

Contamination: The primary contaminant of concern is thorium-232; however, other contaminants have been identified, including PCBs and pesticides.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

A Remedial Investigation report and Baseline Risk Assessment have been completed for the waste storage pile (DOE 1993, 1994). Only limited characterization of the WISS subsurface was performed during the RI due to the presence of the interim storage pile over the burial areas. Draft feasibility studies have been issued to EPA Region II and the state.

A draft EECA prepared by DOE to address a portion of the subsurface materials at the WISS contained three- (3) alternatives:

1. No Action, representing a baseline of current conditions.
2. Expedited removal of 20,000 CY to 40,000 CY of contaminated material for off-site commercial disposal.
3. Placement of a temporary soil cover over the footprint of the interim waste storage pile.

DOE proposed alternative 2 was its preferred action.

There has been no decision for the remainder of the site, which includes a building with fixed radioactive contamination, i.e., record of decision (ROD), cleanup criteria, land use, etc. DOE estimated the total amount of subsurface soil and bulk waste to be removed at 57,000 CY.

2.2 Site Status

Congress directed DOE in 1984 to conduct remedial action at this site and DOE placed this into the FUSRAP Program. Both radiological and chemical contamination is present. EE/CA's have been developed and implemented which provided for restoration of vicinity properties and removal of the Wayne Interim Storage Site soils. Another draft EECA has been developed by DOE to remove an estimated 20,000 to 40,000 cubic yards of subsurface soil in the WISS area. Only limited record searches or site characterizations have been completed to date on the WISS

subsurface soil and groundwater.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies could increase cost compared to prior DOE estimates:

- Only limited characterization of the subsurface, which includes a number of burial areas, has been performed. The presence of mixed waste is suspected, but has not been confirmed with adequate characterization.

- Only limited characterization of groundwater has been performed.

- No agreement on cleanup criteria or the remedy for the site has been reached with stakeholders.

- Physical attributes of the site (space constraints, artesian groundwater conditions, presence of buried building rubble and process equipment, presence of multiple waste burial pits) are expected to complicate excavation activities.

- A CERCLA risk assessment , including risks to the remedial action worker, and the potential for off-site releases during potential remedial action, will need to be performed after additional characterization of the subsurface is performed which addresses both radioactive and other hazardous substance contamination.

3. COMMUNITY & REGULATORY CONSIDERATIONS

3.1 General Issues

The Wayne Site is listed on the National Priorities List and is the subject of a Federal Facilities Agreement between DOE and U.S. EPA Region II. USACE is now the lead federal agency for the conduct of response actions at the site and will select the final remedy with the concurrence of EPA. Under the FFA, there are mandates for consultation with EPA on all CERCLA work, a requirement for selection of the remedy with EPA, and deadlines subject to stipulated penalties. The State of New Jersey is not a party to the FFA, but has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. DOE has provided community participation in the CERCLA process primarily through contacts with local community officials and members of the public, and by sponsoring public information meetings and seeking public comment. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site.

Over the years, DOE has received a number of requests regarding the final remedy to be performed at this site, from congressional members, members of the public and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at the Wayne Site. USACE is compiling and

evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project and the program. There have been requests to move all wastes from this site and not leave a disposal cell in place, requests not to conduct certain treatment technologies on the materials at the Wayne site, and requests not to move wastes from any other location to the Wayne Site. There have been requests for cleanup standards at residential levels, and requests for selection of a remedy that is supported by the community. USACE along with EPA will consider all the comments submitted regarding the final remedy and will select a remedy that complies with CERCLA and will protect the public and the environment. The cleanup standards will consider site and surrounding current and reasonable future uses of the property.

Legal issues. The Wayne Site has completed removal of the above surface waste pile, and the final remedy selection under CERCLA is the next major goal at the site. USACE will work with EPA to comply with the procedural requirements of CERCLA and move forward with completion of the final remedy. The Wayne Site was operated commercially by W.R. Grace & Co. and its predecessors for several decades before and after their work for the AEC. Grace and its predecessors disposed of their process waste at a number of locations on the site, including trenches and lagoons. DOE, working with the U.S. Department of Justice and EPA, had been negotiating with a PRP for a contribution to the response costs at this site. USACE intends to participate in the negotiations to continue the effort to obtain an equitable contribution to the response costs from this PRP. In order to ensure that waste materials removed for off site disposal are transported to a proper location, the waste will be characterized to determine if mixed waste is present prior to shipment from the site.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, the site will be satisfactorily characterized, appropriate cleanup criteria will be established, and concurrence under the Federal Facility Agreement obtained before a remedial action will be performed to mitigate the subsurface. The following remedial action documentation may be prepared: preliminary assessment, site inspection, remedial investigation (soil and groundwater), feasibility studies, proposed plans, site-specific work plans, a record of decision, and final closure documents. Tasks for the remedial action will include removal of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained.

The draft EECA released for public comment by New York District, on 20 Nov. 97, also proposed alternative 2 (but a maximum of 40,000 CY was used) as the preferred interim removal action.

4.2 Site Schedule Milestones

Task	Start Date	End Date
• EECA (WISS Removal)	Completed	
• Remedial Action Document Preparation	Winter 1998	Summer 1998
• EECA (WISS Subsurface Removal) (if appropriate)	Winter 1998	Winter 1999
• Remedial Investigation/Feasibility Study	Spring 1998	Spring 1999
• Record of Decision	Spring 1999	Summer 1999
• Remedial Action	Fall 1999	Summer 2001
• Project Close-out	Summer 2001	Fall 2001

4.2 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2001	48.2
DOE TYP	2001	48.7
USACE Baseline	2001	56.1
USACE Conservative	2002	79.9

Note: USACE 2001 cost assumed DOE scope of work is correct and no additional volume of soil will require disposal, but does include additional cost for characterization and remediation of the subsoil, groundwater and CERCLA close out requirements. The conservative cost assumes additional volume of soil.

New York, Colonie FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The site consists of a total area of 11.2 acres plus 56 vicinity properties. Three of the vicinity properties, as well as property of the Niagara Mohawk Power Company, have yet to be remediated.

History. The 11.2-acre tract was owned and operated by National Lead Industries (NL) for various metals manufacturing activities from 1937 to 1984. From 1958 to 1984, NL held a commercial radioactive material license issued by the NRC, and conducted several different processes involving radioactive materials. Congress directed DOE to conduct remedial action at this site in 1984. DOE placed the site in FUSRAP because of the similarity of this site to those others in FUSRAP.

Contamination. Primary contaminants of concern are uranium-238, thorium-232, lead, copper, and tetrachloroethene (PCE).

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

DOE's remedial approach assumed selective removal, treatment (if necessary), and commercial disposal of higher activity soils; consolidation of the remaining material above site-specific guidelines; cap with 18 inches of gravel and clean soil; placement of 6 inches of clean soil over that portion of the site that is not covered by cap; and removal, treatment, and offsite disposal of tetrachloroethene contaminated soils. This would involve removing and treating 8,900 cubic yards to standards for disposal at a licensed facility.

2.2 Site Status

According to DOE, site characterizations indicate both radiological and chemical contamination are present. An interim action which removed radiologically contaminated soil and debris was completed in 1988. The site area subject to RCRA authority was closed in 1995 under an approved RCRA closure plan. An EECA has been developed which will provide for removal of higher activity soils and PCE contamination, consolidation and cover of residually contaminated soils, and groundwater monitoring on the main site and adjacent properties.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Access to the Conrail vicinity property is needed to conduct characterization. DOE assumed that data from characterization would support a risk analysis that would indicate no further remediation of this property is necessary.

- Rail access to the site for waste loading has not been negotiated with Conrail, which owns a rail spur adjacent to the site.

- There is a potential for hazardous waste material on site that has not been adequately characterized..

- Groundwater characterization is uncertain.

3. COMMUNITY & REGULATORY CONSIDERATIONS

The Colonie site is not listed on the National Priorities List, and USACE is now the lead federal agency for remediation in accordance with CERCLA. The State of New York has been involved in technical consultation with DOE and their continued involvement will be sought by USACE. Community participation in the CERCLA remedy selection process has been provided by DOE by making site information available for public review, sponsoring public information meetings, and seeking public comment. USACE will continue to actively seek community participation by encouraging all interested persons to review information and comment on the response actions to be conducted at this site. USACE has discovered no special requests or concerns to DOE or commitments from DOE regarding the response actions at this site.

Legal issues. The Colonie Site removal action, which is the subject of the February 1997 DOE Action Memo, will be conducted by USACE, after which USACE will move forward to complete the CERCLA response process, determine if any final remedial action is necessary, issue a final Record of Decision, and conduct any final remedial action for the site. At this site, there are hazardous wastes reportedly present as a result of the commercial operations at the site and USACE will provide for disposal in compliance with RCRA, as well as proper disposal of the radioactive waste materials. Although the past operator at the site is liable under CERCLA for the costs of response, it appears no cost recovery or contribution is possible due to a release from the United States at the time the property was acquired in 1984. USACE will review the available documents to evaluate the potential for government claims.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, a removal and final remedial actions, as necessary, will be performed and include exhuming, processing, containerizing, sampling, analyzing, transporting, and disposing of contaminated soils. The interim action will also involve recontouring low level contaminated soils and covering with soil. Confirmation testing will be performed to ensure standards are maintained. Environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Hazard assessments, remedial investigation, feasibility studies, and remedial action planning will be developed when appropriate.

New York, Colonie FUSRAP Site

4.2 Site Schedule Milestones

Tasks	Start Date	Completion Date
• Interim Removal Action	Spring 1998	Fall 1998
• Site Investigation and Characterization	Spring 1998	Fall 1998
• Remedial Investigation and Feasibility Studies	Fall 1998	Spring 1999
• Record of Decision	Spring 1999	Summer 1999
• Remedial Action Implementation	Summer 1999	Fall 2000
• Project Close-out	Fall 2000	Winter 2001

4.3 Cost

These USACE cost are based original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2000	20.1
DOE TYP	2000	21.7
USACE Baseline	2001	24.3
USACE Conservative	2001	24.3

Note: The USACE cost estimate assumes current information on waste materials requiring removal is accurate.

New Jersey, DuPont-Chambers Works, Deepwater FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The DuPont Chambers Works site is a 700-acre active chemical plant located on the southeastern shore of the Delaware River, adjacent to the residential community of Deepwater, New Jersey. The plant is owned and operated by E.I. DuPont de Nemours & Company.

History. Operations involving uranium in certain buildings at the site began in 1942 for the Manhattan Engineer District (MED) and continued until late 1947. In 1948 and 1949, AEC conducted radiological surveys and decontamination of building surfaces at the site. Following a radiological survey AEC released the buildings back to DuPont in 1949. DuPont conducted other commercial operations on the property both before and after this MED work, and currently has operations at the facility.

Contamination. The major onsite radiological contaminant of concern is uranium-238.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

DOE's restoration approach assumed two operable units: Building 845/Central Drainage Ditch and the balance of the site (areas 1,2,5,6). The possible work included completing decontamination of Building 845 for demolition by DuPont (and disposal of contaminated debris by FUSRAP if the government agreed); complete excavation of soils from the Building 845/Central Drainage Ditch area (approximately 70 cy) and the balance of the site (estimated at 6,000 - 8,000 cubic yards); consolidation in an onsite engineered waste containment area (assumed to be constructed by DuPont under RCRA); and restoring excavated areas. Assessment would be completed in FY98 and remedial action in FY2000. No consideration was given to groundwater. Land use was assumed to remain industrial. Total estimated cost was $11 million.

2.2 Site Status

This site was initially designated into FUSRAP in 1980. USACE and the U.S. Department of Justice are currently determining the appropriate course of action, due to ongoing active litigation.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- The litigation by DuPont against the United States includes all areas of contamination, including radioactive contamination, and the time for resolution of those claims and their impact to any work which the USACE, with DOJ, may decide to conduct is unknown.

- DOE baseline budgets were historically not funded at a level to achieve the projected completion dates. The schedule for remediation was largely being controlled and driven by DuPont's RCRA activities.

- DuPont is subject to RCRA corrective action requirements under New Jersey state regulation, so there is a likelihood of encountering hazardous wastes from their operations in any areas which may be remediated under FUSRAP, but these areas have not been characterized for hazardous wastes.

3. COMMUNITY & REGULATORY CONSIDERATIONS

This site is not listed on the National Priorities List and USACE will respond at this site as the lead federal agency under CERCLA only for the portion of the radioactive hazardous substances at the site for which the United States may decide to accept responsibility under CERCLA. All radioactive and other hazardous substances at the site are included in the litigation by DuPont against the United States, and the United States is defending against the complaint. In addition, DuPont is subject to corrective action requirements under a New Jersey RCRA order which may impose requirements or standards different than those which would apply under CERCLA. The New Jersey Department of Environmental Protection (NJDEP) and EPA Region II have expressed an interest in the possible FUSRAP work at the site, and the State has stated that the RCRA requirements at the site must be completed, by either USACE or DuPont. Even if the United States would decide to proceed with work at this site under FUSRAP, there is a potential for encountering mixed waste due to the RCRA hazardous wastes released at the site as a result of the DuPont operations. This potential for mixed waste would require that USACE to properly characterize the waste for disposal purposes, and is likely to create the need for cost recovery or contribution from DuPont. USACE will consult with the U.S. Department of Justice to determine if work should proceed at this site under FUSRAP and, if so, the limits of that work. If work proceeds, it will be necessary for the United States to negotiate with DuPont and possibly other interested parties such as regulatory agencies regarding the procedures, standards, responsibilities, and costs involved with any work which will be conducted.

If the United States should decide to conduct work at this site, technical consultation from the State will be requested by USACE, as well as public information and comment on any response action decisions. At this time, no particular community groups have been identified to USACE with concerns regarding the cleanup work at this site.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

If USACE and DOJ agree to conduct a removal action on the drums containing waste placed in the containers by DOE, then USACE will develop an EECA. Tasks will include characterization, profiling, manifesting, transporting, and disposing of the waste.

New Jersey, DuPont-Chambers Works, Deepwater FUSRAP Site

4.2 Site Schedule Milestones

Task	Start date	Completion Date
• EECA	Spring 1998	Summer 1998
• Interim Removal Action	Summer 1998	Fall 1998

Note: Additional task will be dependent on the results of the ongoing litigation.

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

		Cost - FY98 to Completion
Cases	Completion Date	(In Millions)
DOE ACP	2001	10.4
DOE TYP	2001	10.5
USACE Baseline	2002	16.5
USACE Conservative	2002	16.5

Note: The USACE Baseline cost may decrease depending on the results of the ongoing litigation.

Illinois, Madison (Former Dow Chemical Company Site) FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. This site is located across the Mississippi River from St. Louis, Missouri, in Madison, Illinois.

History. The site is a former Dow Chemical Company plant, now owned by Spectrulite Consortium Inc. Research and development work performed for the Mallinckrodt Co. during the 1950s and 1960s consisted of gamma-phase extrusion and rod straightening of uranium metal. Recent survey results indicate elevated concentrations of uranium and thorium in the area where the uranium extrusion and rod straightening work took place. Spectrulite is currently undergoing decontamination and decommissioning (D&D) proceedings with the Illinois Department of Nuclear Safety (IDNS) for its magnesium-thorium draw storage and manufacturing processes.

Contamination. The primary radioactive contaminants of concern are uranium-238 and thorium-232, distributed on roof beams and trusses in Building 6 and possibly in Building 4 .

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

DOE's remedial approach included characterization of Building 4 and 6 (approximately 300,000 square feet each) performing environmental studies and decision documentation, remediation of Building 6 and potentially Building 4 to appropriate standards. The waste removed would then be treated, stored, transported and disposed of,(estimated 10 cubic yards). Appropriate restoration of areas where response actions were conducted was included, followed by verification and certification of completed sites. Under DOE, 2002 and 2006 proposed plans the estimated cost to complete was $4.6 million by 2002 and $4.8 million by 2006.

2.2 Site Status

This site was designated into FUSRAP in 1992. According to DOE, preliminary radiological surveys and characterizations have indicated that radiological contamination is present within the building. No chemical characterization has been conducted to date.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Lack of detail project scope and complete site characterization.

- Lack of detailed or long-term strategy has hindered the development of a real estate agreement on terms and conditions on access which will minimizes impacts of remedial activities on the owner's on going production operations.

- Evaluation of radioactive or other contamination has not been adequate to determine if other parties are responsible. There have been commercial operations at the site which involved the use of radioactive materials, as well as other processing activities, which could have caused releases of hazardous substances at the site.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

The Madison site is not listed on the National Priorities List, and USACE is now the lead federal agency for remediation in accordance with CERCLA. The State of Illinois Department of Nuclear Safety has indicated an interest in technical consultation and their involvement will be encouraged by USACE. Community participation in the CERCLA remedy selection process will be provided by making site information available for public review, sponsoring public information meetings, and seeking public comment. USACE will actively seek community participation by encouraging all interested persons to review information and comment on the response actions to be conducted at this site. USACE has discovered no special requests or concerns to DOE or commitments from DOE regarding the response actions at this site.

Legal issues. The CERCLA process is in the characterization stage at this site, and response actions will be conducted consistent with the NCP. Any differences between those State processes which apply to the owner's response work and the CERCLA process which applies to the USACE work will be determined and USACE will coordinate with the State and the owner to minimize impacts to necessary response actions.

3.2 Constraints

- Inability to reach agreement for access with property owners would impact schedule and costs.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, a hazard assessment and/or a remedial action will be performed. The hazard assessment will determine radiological doses from the building contamination; a risk analysis will be developed to quantify hazards to human health. If unacceptable risk to human health exists, and authority to access the site is provided, a remedial action will begin. Tasks for this action include: source area removal within the building and transporting and disposing of wastes. Possible environmental documentation includes proposed plans, site-specific work plans, records of decisions, and final closure documents. Confirmation testing will be performed to

ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially-generated contamination. Potentially Responsible Parties will be apprised of their liabilities.

4.2 Site Schedule and Milestones

Listed below are projected duration intervals for the cited tasks. The execution of this work is contingent upon authority to access the site in two week intervals.

Task	Date
• Site Investigation and Characterization	Summer 1999
• Engineering Evaluation/Cost Analysis (EE/CA)	Fall 1999
• Remedial Action Implementation	Summer 2000
• Record of Decision/Project Close-out	Fall 2001

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

		Cost - FY98 to Completion
Cases	Completion Date	(In Millions)
DOE ACP	2002	4.6
DOE TYP	2002	4.8
USACE Baseline	2001	1.8
USACE Conservative	2002	3.0

Note: USACE conservative cost assumes additional decontamination and material for offsite disposal.

Missouri, St. Louis Airport Site (SLAPS) FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The St. Louis Airport Site (SLAPS) occupies 21.7 acres north of the Lambert-St. Louis International Airport in north St. Louis County, Missouri. The ditches immediately adjacent to the north and south of SLAPS are considered as part of the SLAPS location.

History. In August 1942, the Mallinckrodt Chemical Company, at the direction the U.S. Army Manhattan Engineer District (MED), began production of uranium oxide and trioxide from uranium ore at its downtown St. Louis, Missouri, site. In 1946, MED acquired title to SLAPS to store residues from the processing. Most wastes were stored in the open, on the ground. In 1966 and 1967, most of the stored residues were sold for mineral recovery and transported by the purchaser to the Latty Avenue site. In 1973 the property was transferred to the St. Louis Airport Authority (City of St. Louis). The site was placed on the National Priorities List in 1989.

Contamination. Contaminants include uranium-238, thorium-230, thorium-232 and radium-226, as well as metals and organic contaminants.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

The DOE restoration approach for SLAPS includes: removal and commercial disposal of soils to site-specific standards based on land use and depth of contamination, removal of material near Coldwater Creek, provision for erosion controls, and use of institutional controls to provide long-term protectiveness. Future land use is assumed to be industrial. Cleanup standards were not specified for this case but were to be determined based on final land use. DOE had developed two approaches with associated cost estimates, one based on industrial standards for completion by 2000 at an estimated cost of $38M, and one based on residential standards for completion by 2006 at an estimated cost of $192M.

2.2 Site Status

Congress directed DOE to conduct remedial action at this site in 1984, DOE than placed this site into the FUSRAP program. According to DOE, preliminary radiological surveys and characterizations have indicated radiological contamination is present at the site. Chemical characterization has not been completed to date.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- The extent of contamination has not been fully characterized, including mixed waste.
- Groundwater contamination has not been adequately characterized or addressed.

- Lack of long-term real estate planning to obtain necessary right-of-way and rights-of-entry are likely to affect schedules and cost.

- Lack of consistent cleanup criteria and project scope from 2006 (residential) to 2002 (industrial/ commercial) budget scenarios has resulted in reduced project expectations, which may not be attainable.

- The proposed strategy for remedial action was not completed in accordance with the CERCLA process as outlined in the NCP. USACE will need to complete the CERCLA process, including public comment and final remedy selection.

- Cost estimates and schedules lacked details to adequately o address project close-out in accordance with the CERCLA process.

- This project would not have been completed by the year 2000 as claimed in the ACP.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

This site is listed on the National Priorities List (NPL), and is included in the Federal Facilities Agreement (FFA) entered into between DOE and the U.S. Environmental Protection Agency (EPA) for all St. Louis FUSRAP sites. Under the FFA, there are mandates for consultation on all CERCLA work, a requirement for selection of the remedy with EPA, and deadlines subject to stipulated penalties. USACE is now the lead federal agency for completion of necessary response actions which are consistent with the NCP and protective of human health and welfare and the environment. The State of Missouri is not a party to the FFA, but it has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. Community participation in the CERCLA process has been provided by DOE primarily though contacts with a local community group known as the St. Louis Oversight Committee, as well as by sponsoring public information meetings and seeking public comment on response actions. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site, including the members of the Oversight Committee and other interested groups.

Over the years, DOE has received numerous requests for promises regarding the final remedy to be performed at this and the other St. Louis sites, from Congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at the St. Louis sites, including the Airport Site. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project and the program.

Legal issues. The SLAPS work will be proceeding toward a final remedy selection under CERCLA, but further data is needed to support decisions regarding groundwater and innovative technology alternatives. All work must comply with the procedural requirements of the FFA. USACE will work with EPA to meet all requirements and move the project forward to completion of the final remedy.

3.2 Constraints

The extent of the contamination at SLAPS may not have been fully characterized. Additional chemical analysis and historical records searches may be requested after review of existing data.

- Stakeholders request that the Technology Demonstration will be carried out before a final remediation plan is determined
- Resolution of the plausibility that groundwater from this site has an ingestion pathway for this site is needed.
- The cleanup criteria have not been agreed upon by EPA or proposed to the stakeholders.
- Due to limited rail car capacity in this area in the fall of each year, there could be significant delays in removal of material from the sites.
- Inability to reach agreements for access with property and utility owners could impact schedules and costs.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, both interim removal actions and remedial actions will be performed. . Tasks for these actions include; removal, processing, containerizing, sampling, analyzing, transporting and disposing of the contaminated soils. Remedial actions will also be performed and may include the following document preparation: hazard assessments, remedial investigation, feasibility studies, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Tasks for the remedial action may include exhumation of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED related contamination from commercially-generated contamination. Potentially Responsible Parties will be also be apprised of their liabilities.

4.2 Site Schedule Milestones

Tasks	Start Date	Completion Date
• Site Investigation and Characterization	Spring 1998	Fall 1998
• Remedial Investigation and Feasibility Studies	Fall 1998	Summer 1998
• Remedial Action Planning	Spring 2000	Summer 2000
• Record of Decision	Summer 2000	Fall 2000
• Remedial Action	Fall 2000	Fall 2003
• Project Close-out	Winter 2004	Summer 2004

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2000	37.4
DOE TYP	2004	191.4
USACE Baseline	2004	123.4
USACE Conservative	2006	179.5

Note: USACE conservative cost assumes a larger volume of soil to be remediated.

Missouri, St. Louis Airport Site (SLAPS) Vicinity Properties (VPs) FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The St. Louis Airport Site (SLAPS) occupies 21.7 acres north of the Lambert-St. Louis International Airport in north St. Louis County, Missouri.

Contamination, which came from the SLAPS, has also been found on vicinity properties (VPs). These vicinity properties include:

- the former ballfields directly north of SLAPS across McDonnell Boulevard;
- areas along McDonnell Boulevard, Eva Avenue, Frost Avenue, Hazelwood Avenue, and Pershall Avenue (collectively referred to as the Haul Roads);
- Coldwater Creek (the stretch of creek from SLAPS to Interstate 270 has been designated a FUSRAP location; the stretch of creek from Interstate 270 north to the mouth of the creek may be contaminated but has not yet been designated); and
- areas along Banshee Road (airport property).

History. In August 1942, the Mallinckrodt Chemical Company, at the direction of the U.S. Army Manhattan Engineer District (MED), began production of uranium oxide and trioxide from uranium ore at its downtown St. Louis, Missouri, site. In 1946, MED acquired title to the SLAPS property to store residues from the processing. In 1966 and 1967, most of the stored residues at SLAPS were sold for mineral recovery and transported by the purchaser to the Latty Avenue site. Most of the roadway shoulder and ditch contamination occurred during this transportation.

Contamination. The contaminants of concern are radium-226, thorium-230, thorium-232, and uranium-238.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

The DOE restoration approach for SLAPS VPs includes: complete excavation and the commercial disposal for the material from the ballfields, cleaning airport property and haul road VPs, and ditches. The DOE recognized future use assumptions are industrial for the SLAPS ditches and commercial for the airport property. Yet, the DOE proposed remedy assumed residential future use for the ballfields and Haul Roads properties (with restrictions on inaccessible material beneath roads) and cleanup of Coldwater Creek to unrestricted use criteria. Cleanup under this DOE proposal was to be completed in FY 2002 at an estimated cost of $166M. Material estimated to be impacted under these conditions is approximately 135,000 cubic yards (not including that portion of Coldwater Creek north of Interstate 270). DOE had begun procurement of a technology demonstration project which could affect the final remedy selection.

Missouri, St. Louis Airport Site (SLAPS) Vicinity Properties (VPs) FUSRAP Site

2.2 Site Status

Some 78 vicinity properties were directed by Congress in 1984 to have remedial action conducted at these sites, DOE placed the sites into the FUSRAP program. Cleanup has been completed on 31 of the 78 Vicinity Properties. Chemical characterization has not been finalized to date. Preliminary radiological surveys and characterizations have been conducted.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- The extent of contamination, including mixed waste in the floodplain along the designated portions of Coldwater Creek, has not been fully characterized.
- Groundwater assumptions and contamination have not been adequately characterized or addressed.
- Lack of long-term real estate planning to address right-of-ways and rights-of-entry have effected schedules and cost.
- Inconsistency in cleanup criteria and project scope requirements from 2006 (residential) to 2002 (industrial/commercial) cost estimates scenarios has resulted in reduced project scope which may not be attainable.
- Lack of detailed activity-based project cost estimates and schedule leading to a completed project close-out.
- Inclusion of additional properties is a possibility, such as the downstream portion of Coldwater Creek.
- This project would not have been completed by the year 2002.
- The potential to use lower cost alternate disposal for the remaining wastes has not been fully explored.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

The SLAPS Vicinity Properties site is included in the Federal Facilities Agreement entered into between DOE and the U.S. EPA for all St. Louis FUSRAP sites. Under the FFA, there are mandates for consultation on all CERCLA work, a requirement for selection of the remedy with EPA, and deadlines subject to stipulated penalties. USACE is now the lead federal agency for

completion of necessary response actions which are consistent with the NCP and protective of human health and welfare and the environment. The State of Missouri is not a party to the FFA, but it has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. Community participation in the CERCLA process has been provided by DOE primarily though contacts with a local community group known as the St. Louis Oversight Committee, as well as by sponsoring public information meetings and seeking public comment on response actions. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site, including the members of the Oversight Committee and other interested groups.

Over the years, DOE has received numerous requests for promises regarding the final remedy to be performed at this and the other St. Louis sites, from Congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at the St. Louis sites, including the SLAPS Vicinity Properties. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project and the program.

In the original legislation including these sites in FUSRAP, there was a requirement to place all the wastes in a disposal site near the St. Louis Airport. More recently, there have been requests not to place any waste in any disposal cell on any of the St. Louis sites or at the disposal site at Weldon Springor at any site in Missouri. There have been requests for cleanup standards at residential levelsand at below background or detectable levels of radioactivity. There are also requests for selection of a remedy which is supported by the community. USACE will review and analysis these request to determine an approach which is in the overall best interests of achieving the goals of CERCLA process.

Legal issues. The SLAPS Vicinities Property work will be proceeding toward a final remedy selection under CERCLA, but further data is needed to support decisions regarding Coldwater Creek and innovative technology alternatives. All actions must comply with the procedural requirements of the FFA. USACE will work with EPA to meet all requirements and move the project forward to completion of the final remedy. Some of the radioactive material at these sites was moved in the past by others, causing further releases and increasing the cost of remediation at the site. USACE will ensure that all waste disposed off site is properly characterized and disposed at an acceptable facility, and will seek contribution or cost recovery if costs are incurred due to the presence or location of contamination which is the responsibility of others.

3.2 Constraints

- Stakeholders requested that the Technology Demonstration will be carried out before a final remediation plan is determined.
- The cleanup criteria have not been determined by USACE and the EPA, or proposed to the stakeholders.
- Community requests that entire length of Coldwater Creek from SLAPS to the mouth of the creek will be cleaned.
- Inaccessible materials may require long-term monitoring/management.
- Inability to reach agreements for access with property and utility owners could impact schedules and costs.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, an interim removal action will be performed. An EECA has been developed which will provide for removal of contaminated soils along all Haul Road areas. Tasks for this action include: exhumation of surface and subsurface wastes, consolidation of the wastes, and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially-generated contamination. Potentially Responsible Parties will be apprised of their liabilities.

4.2 Site Schedule Milestones

Task	Start Date	Completion Date
• Interim Removal Action	Ongoing	Fall 1998
• Site Investigation and Characterization	Spring 1998	Fall 1998
• Remedial Investigation and Feasibility Studies	Fall 1998	Summer 2000
• Remedial Action Planning	Spring 2000	Summer 2000
• Record of Decision	Summer 2000	Fall 2000
• Remedial Action	Fall 2000	Summer 2003
• Project Close-out	Summer 2003	Fall 2003

Missouri, St. Louis Airport Site (SLAPS) Vicinity Properties (VPs) FUSRAP Site

4.3 Cost

These USACE cost are based original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2002	158.3
DOE TYP	2005	181.2
USACE Baseline	2003	85.9
USACE Conservative	2004	122.0

Missouri, St. Louis Downtown site (SLDS) and Vicinity Properties FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The St. Louis Downtown Site (SLDS) and vicinity properties are located at the Mallinckrodt Chemical company plant within the city limits of St. Louis, Missouri.

History. Mallinckrodt has operated a chemical manufacturing facility at this location since the late 1800s. The company processed uranium compounds and pure uranium metal from ores at SLDS from 1942 to 1957 for the Manhattan Engineering District. Mallinckrodt also manufactured radionuclide products independent of the government operation. Mallinckrodt continues to operate an active chemical manufacturing operation on the site.

There are 17 acres where contaminated soils are accessible for remediation without major disruption of plant operations. An additional 7 acres of contaminated area are not readily accessible for cleanup because they are covered by active railroad lines, warehouses, and manufacturing facilities.

Contamination. Primary contaminants of concern are radium-226, thorium-230, thorium-232, uranium-238 and associated decay products, metals, and organic compounds.

2. OVERVIEW OF DOE CLEAN-UP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

The DOE 2006 plan projects completion in FY2003 at a cost of $174 million. The DOE 2002 plan projects completion in FY2000 at a cost of $78M. Removal of higher concentration subsurface soil to site-specific, industrial/commercial risk based standards was assumed, as well as decontamination/dismantlement of certain decontaminatedbuildings and removal of surface soil. Removal of accessible soil at vicinity properties is included. A hazard assessment for leaving inaccessible soil in place at the plant site was planned. In situ quantity of soil to be removed (including the vicinity properties) is 64,600 cubic yards not including inaccessible soils. DOE assumed a future land use of industrial/commercial with no groundwater ingestion risk pathway.

2.2 Site Status

This site was designated into FUSRAP in 1981. According to DOE, radiological surveys and characterizations indicate that radiological contamination is present at the site. However, chemical characterization has not been completed to date.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimates:

- Groundwater assumptions and contamination have not been adequately characterized or addressed.

- Inconsistency in cleanup criteria and project scope requirements from 2006 to 2002 DOE budget scenarios have resulted in reduced project scope.

- There is inaccessible contamination in some areas under rail lines and currently operating buildings. Inability to reach agreements for access with property and utility owners could impact schedules and costs.

- There is a request from the owner for a very long-term commitment for site monitoring and future cleanups.

- There is a lack of detailed chemical characterization of contaminated material, and no input of RCRA corrective action data from the owner for areas which overlap the FUSRAP work areas, which could significantly affect treatment requirements and disposal options, and costs associated with both.

- There is no agreement with the owner as to delineation of FUSRAP remedial work areas and other areas of radioactive contamination which are believed to result from their commercial operations, the handling of hazardous wastes from their operations during FUSRAP work, sharing costs for areas of overlapping responsibility for contamination, or access to active operating areas.

- Building debris has been accumulated on the site from past cleanup or demolition actions which meets release criteria, but resolution of placement of fill on site has not been reached.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

This site is not on the National Priorities List; however, it is included in the Federal Facilities Agreement entered into between DOE and EPA for all St. Louis FUSRAP sites. Under the FFA, there are mandates for consultation on all CERCLA work, a requirement for selection of the remedy with EPA, and deadlines subject to stipulated penalties. USACE is now the lead federal agency for completion of necessary response actions which are consistent with the NCP and

protective of human health and welfare and the environment. The State of Missouri is not a party to the FFA, but it has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. Community participation in the CERCLA process has been provided by DOE primarily though contacts with a local community group known as the St. Louis Oversight Committee, as well as by sponsoring public information meetings and seeking public comment on response actions. USACE will continue to actively seek community participation by encouraging all interested persons to obtain information and comment upon the response actions to be conducted at this site, including the members of the Oversight Committee and other interested groups.

Over the years, DOE has received numerous requests for promises regarding the final remedy to be performed at this and the other St. Louis sites, from Congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at the St. Louis sites, including the Downtown Site. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project and the program.

In the original legislation including these sites, there was a requirement to place all the wastes in a disposal site near the St. Louis Airport. More recently, there have been requests not to place any waste in any disposal cell on any of the St. Louis sites, or at the disposal site at Weldon Springor, or at any site in Missouri. There have been requests for cleanup standards at residential levels, despite the future industrial use plans for this property, and requests for cleanup to standards at or below background or detectable levels of radioactivity. There are requests to evaluate groundwater risks in the event of drinking water use of the groundwater, despite the fact this site is served by municipal water supply and there are no drinking water wells on or near the site. USACE will review the request to determine an approach which is in the overall best interests of achieving the goals of CERCLA process.

Legal Issues. The SLDS work will be proceeding toward a final remedy selection under CERCLA, but must comply with the procedural requirements of the FFA. USACE will work with EPA to meet all requirements and move the project forward to completion of the final remedy. The Mallinckrodt facility is an operating industrial facility which is also in the RCRA corrective action process for many areas of the site. Mallinckrodt also has a commercial NRC license concerning radioactive materials use and is closing some parts of the site under NRC regulatory oversight. Some of the FUSRAP work areas overlap areas with radioactive or hazardous waste, which are the responsibility of Mallinckrodt. Some FUSRAP work areas also are under currently used buildings, utilities, or railroad lines, and it will be necessary to make appropriate arrangements to resolve these competing needs while completing the necessary response actions at the site in a timely manner. USACE will work to achieve agreements which allow the work to be completed and protect the interests of the public and the United States. USACE will also ensure that all waste disposed offsite is properly characterized and disposed at an acceptable facility, and will seek contribution or cost recovery if costs are incurred due to the presence of contamination which is the responsibility of others.

3.2 Constraints

- Inability to reach agreements for access with property and utility owners could impact schedules and costs.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Both interim removal actions and remedial actions will be performed. An EECA has been developed which will provide for building demolition. Tasks for this action include: demolition of the building, recycling scrap metal where possible, and transporting and disposing of wastes. Remedial actions will also be performed to remove subsurface contamination and may include the following document preparation: hazard assessments, remedial investigation, feasibility studies, site specific radionuclide cleanup guidelines, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and may include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Appropriate cleanup standards for designated land use will be developed. Tasks for the remedial action will include removal of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially-generated contamination. Potentially Responsible Parties will be apprised of their liabilities, as appropriate.

4.2 Site Schedule Milestone

Task	Start Date	Completion Date
• Site Investigation and Characterization	Ongoing	Spring 1998
• Remedial Investigation and Feasibility Studies	Ongoing	Spring 1998
• Remedial Action Planning	Summer 1998	Fall 1998
• Record of Decision	Spring 1998	Summer 1998
• Remedial Action	Summer 1998	Fall 2002
• Close-out	Fall 2002	Summer 2003

(These dates were planned by DOE and are subject to negotiation under the FFA.)

Missouri, St. Louis Downtown site (SLDS) and Vicinity Properties FUSRAP Site

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2000	77.8
DOE TYP	2003	174.0
USACE Baseline	2002	55.0
USACE Conservative	2005	167.2

Note: USACE conservative assumes that groundwater will be impacted and additional soil will require disposal offsite.

Missouri, Latty Avenue Properties, Hazelwood FUSRAP Site

1. DESCRIPTION OF PROJECT/SITE

Location. The Latty Avenue Properties are comprised of several different tracts. An 11-acre site which contains the Hazelwood Interim Storage Site (HISS) and the Futura (Futura) Coatings property is located at 9200 Latty Avenue, Hazelwood, Missouri. Other Latty Avenue Vicinity Properties are located around this 11-acre central tract.

History. In the 1960's, a private corporation purchased ore residues and uranium and radium process wastes being stored at the St. Louis Airport Site (SLAPS) from the Atomic Energy Commission for private commercial purposes. In the 1960's, approximately 117,000 tons of these materials were transported from SLAPS to 9200 Latty Avenue. And also in the 1960's most of these materials were shipped offsite by private parties for reprocessing for commercial purposes.

In June 1977, the buildings and grounds at 9200 Latty Avenue were purchased for an operation which continues to use the site and has reportedly released contaminants on the site.

In August 1979, under NRC guidance, the owner of the property cleaned up the building and a 3.5-acre tract of land surrounding the building and placed the remaining waste in a pile at the HISS location. In 1981, DOE surveyed and identified radiation levels above background. In the 1980s, other vicinity materials were excavated and placed in the HISS pile in the course of road and building construction.

In 1984, DOE identified contamination in vicinity properties extending along Latty Avenue to Hazelwood Avenue, and from Coldwater Creek to Hanley Road. On October 4, 1989, SLAPS, the HISS/Futura site, and some vicinity properties were added to the National Priorities List (NPL).

Contamination. Contaminants of concern are radium-226, thorium-230, thorium-232 and uranium-238. Hazardous wastes are also present at this site.

2. OVERVIEW OF DOE CLEANUP PLAN

2.1 DOE's Cleanup Plan Strategy for the Site

The DOE 2002 restoration approach for the Latty Avenue Properties includes removal of higher activity soils at HISS/Futura, based on land use, depth of contamination, and accessibility, and excavation with out-of-state commercial disposal of the pile and vicinity property soils. Future land use is assumed to be commercial/industrial for all properties. Cleanup under this scenario would be completed in FY2002 at an estimated cost of $148 million. Material estimated to be impacted under these conditions is about 137,000 cubic yards. The DOE 2006 plan had an estimated cost of $181M. Institutional controls will need to be in place for long term restrictions of the site.

2.2 Site Status

Congress in 1984 directed DOE to conduct remedial at this site, DOE placed this site into the FUSRAP program. According to DOE, surveys and characterizations indicate that radioactive contamination is present at the site. However, chemical characterization has not been finalized to date.

2.3 USACE Assessment

Based on USACE review and assessment of the proposed strategy for this site, the following deficiencies were noted that could increase costs compared to prior DOE estimate:

- Inconsistency in cleanup criteria and project scope requirements from 2006 to 2002 DOE budget scenarios resulted in the lower project scope and cost estimate for the 2002 plan.

- Incomplete site characterization, including the presence of chemical contaminants, impairs the current evaluation of work needed for this site.

- There are reported RCRA regulated releases by the current operator and information on this was not obtained and considered by DOE. USACE evaluate this information and use it in deciding how to proceed in any areas of overlapping subsurface contamination.

- PRP cost recovery has not been initiated.

- The potential to use lower cost disposal alternative has not been fully explored at this site.

3. COMMUNITY AND REGULATORY CONSIDERATIONS

3.1 General Issues

The Latty Avenue St. Louis site is on the National Priorities List and is included in the Federal Facilities Agreement entered into between DOE and U.S. EPA for all St. Louis FUSRAP sites. Under the FFA, there are mandates for consultation on all CERCLA work, a requirement for selection of the remedy with EPA, and deadlines subject to stipulated penalties. USACE is now the lead federal agency for completion of necessary response actions which are consistent with the NCP and protective of human health and welfare and the environment. The State of Missouri is not a party to the FFA, but it has been involved in technical consultation with DOE and their continued involvement will be encouraged by USACE. Community participation in the CERCLA process has been provided by DOE primarily through contacts with a local community group known as the St. Louis Oversight Committee, as well as by sponsoring public information meetings and seeking public comment on response actions. USACE will continue to actively seek community participation by encouraging all interested persons, including the members of the Oversight Committee and other interested groups, to obtain information and comment upon the response actions to be conducted at this site.

Over the years, DOE has received numerous requests for promises regarding the final remedy to be performed at this and the other St. Louis sites, from Congressional members, members of the public, and interested groups and regulatory agencies. DOE officials have made some general or specific commitments regarding response actions to be conducted at the St. Louis sites. USACE is compiling and evaluating these requests and commitments to determine which of them are feasible and appropriate and the impacts they may have on the project and the program.

In the original legislation including this sites, there was a requirement to place all the wastes in a disposal site near the St. Louis Airport. More recently, there have been requests not to place any waste in any disposal cell on any of the St. Louis sites, or at the disposal site at Weldon Springor, or at any site in Missouri. There have been requests for cleanup standards at residential levels, despite the future industrial use plans for this property, and requests for cleanup to standards at or below background or detectable levels of radioactivity. USACE will consider all the comments submitted regarding the final remedy and will, along with EPA, select a remedy which complies with CERCLA and will protect the public and the environment. .

Legal issues. The Latty Avenue work will be proceeding toward a final remedy selection under CERCLA, but further data is needed to support decisions regarding groundwater and innovative technology alternatives. All actions must comply with the procedural requirements of the FFA. USACE will work with EPA to meet all requirements and move the project forward to completion of the final remedy. This property is the site of an operating industrial facility which is reported to have RCRA corrective action issues for some areas of the site. Some of the FUSRAP work areas overlap areas with hazardous waste which is the responsibility of the source operator or owner. There is radioactive material at this site which was moved in the past by others, possibly causing further releases and increasing the cost of remediation at the site. USACE will ensure that all waste disposed offsite is properly characterized and disposed at an acceptable facility, and will seek contribution or cost recovery if costs are incurred due to the presence or location of contamination which is the responsibility of others.

3.2 Constraints

- Stakeholders request that the Technology Demonstration will be carried out before a final remediation plan is determined.

- Land-based property use needs to be considered for the cleanup criteria.

- There are areas under roadways and buildings that might be difficult to access, and time to reach agreements for access may impact schedule and cost.

4. USACE EXECUTION PLAN

4.1 USACE Remediation Plan

Pursuant to closure, both interim removal actions and remedial actions will be performed. An EECA is being prepared which will provide for interim removal of above-grade Hazelwood Interim Storage Site (HISS) soils and residually contaminated soils from the SLAPs baseball fields. Remedial actions will also be performed and may include the following document preparation: hazard assessments, remedial investigation, feasibility studies, proposed plans, site-specific work plans, records of decisions, and final closure documents. Further, environmental documentation activities will be performed and include historical records search, additional soil characterization, data analysis and compilation, waste classification, and groundwater characterization. Tasks for the remedial action may include removal of subsurface wastes and then processing, containerizing, sampling, analyzing, transporting, and disposing of the wastes. Confirmation testing will be performed to ensure standards are maintained. A strategy will be developed which discerns MED-related contamination from commercially-generated contamination. Potentially Responsible Parties will be apprised of their liabilities.

4.2 Site Schedule Milestones

Task	Start date	End Date
• Interim Removal Action	Spring 1998	Fall 1998
• Site Investigation and Characterization	Spring 1998	Fall 1998
• Remedial Investigation and Feasibility Studies	Fall 1998	Fall 1999
• Remedial Action Planning	Spring 2000	Summer 2000
• Record of Decision	Winter 2000	Spring 2000
• Remedial Action	Summer 2000	Winter 2004
• Project Close-out	Winter 2004	Summer 2004

4.3 Cost

These USACE cost are based on original review of DOE scopes, costs estimates, and schedules. USACE will develop detailed bottom-up scopes, cost estimates, and schedules during FY98.

Cases	Completion Date	Cost - FY98 to Completion (In Millions)
DOE ACP	2002	148.3
DOE TYP	2006	181.6
USACE Baseline	2004	114.0
USACE Conservative	2006	214.0